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THE PSYCHOLOGICAL FACTOR IN CHRONIC RHEUMATISM

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Chronic rheumatic diseases comprise a complex group of conditions which are very common, very disabling, and by no means easy to treat. A great deal has been written about them, but there is no unanimity yet as to their interrelationship, their pathology, or their treatment. Roughly these diseases may be divided into four main groups—rheumatoid arthritis, osteo-arthritis, fibrositis, and, standing rather apart, gout.

It is generally held that in the rheumatoid group the most important pathogenic factor is infection, probably by one or other strain of streptococcus. In the osteo-arthritic group degenerative and arteriosclerotic factors are most significant; in fibrositis infection is considered to play an important part in the younger victims, and metabolic and degenerative changes in the older subjects; while in gout there is almost certainly a hereditary factor which governs the metabolic changes that characterize the attack.

In the rheumatoid group we have a condition that many would call "true rheumatoid," in which, while infection is almost certainly of great importance, nevertheless it is difficult to determine its exact source. A few years ago great play was made with the shibboleth of focal infection, yet in a recent communication Cecil and Angevine (1938) examined 200 cases of rheumatoid arthritis and found that 70 per cent. showed no demonstrable signs of it. Treatment of such foci of infection in the remaining 30 per cent. had no beneficial effect in the great majority of cases, produced temporary benefit in a few, and occasionally caused an exacerbation of the arthritis. Yet there is a group of cases of arthritis closely allied to "true rheumatoid," often clinically indistinguishable from it, but as a rule occurring at a later age and often in men, which are indubitably closely associated with focal infection and definitely remedied, if not cured, by the removal of that focus; while the so-called specific arthritides, such as gonococcal, enteric, or dysenteric arthritis, form a series leading even to tuberculous and syphilitic joint disease, with clinical features and pathological changes not always easily distinguishable from "true rheumatoid."

Even in osteo-arthritis it is by no means certain that we can exclude infection, though most authorities would stress the importance of degenerative changes. Thus Polak (1938) says: "The existence of subacute attacks in the evolution of osteo-arthritis no longer allows us to restrict it within the narrow limits of discourse in which many authors have confined it, on the strength of its being always non-inflammatory; we have seen that this is not so."

In fibrositis the conflicting claims of infection and metabolic changes have fought for supremacy, and if at present the balance is tipping towards the metabolic theory there is admittedly no certainty yet. As for gout, we know little more about it than did our ancestors, and the problems still requiring solution are disappointingly many. Furthermore, in the study of all forms of arthritis and rheumatism the importance of allergy (Aschoff, 1938) must not be forgotten, while dietary factors and avitaminosis must not be lost sight of (Abrams and Bauer, 1938).

It is obvious from these considerations that no one factor is going to prove responsible for the various forms of chronic rheumatic diseases, and if we turn our attention in any particular direction it must be clearly understood that the factor under discussion is only contributory to the formation of the total picture, and is in no sense to be regarded as the sole or even the major causal agency. The subject of this paper, then, is how far the result of emotional disturbance may contribute to the picture of chronic rheumatic disease. In dealing with the effects of emotional disturbance on the function of the body it is necessary to divide the effects into two groups.

The first of these consists of those changes produced through abnormal action of the autonomic system on the circulatory and secretory organs and on the tone of plain muscles. Wittkower (1935) in a comprehensive study has shown that changes occur in all sorts of organs as the result of emotional disturbance; most interesting from the present point of view are changes in respiratory exchange, urinary and sweat secretion, both quantitatively and qualitatively on circulation, on endocrine activity, and on the blood. He demonstrates that the leucocyte count can be altered as an increase or a decrease, though without change in the differential blood picture. Changes in the serum calcium, potassium, and chloride contents occur, but not, according to this author, in the blood sugar, though the latter finding would probably be disputed by others. He records experiments on guinea-pigs in which the rate of recovery from injury or infection was definitely hindered by painful or fear-producing emotional situations, while a decrease in the opsonin content is found in states of depression and painfully toned emotions. Heilig and Hoff (1925) demonstrated that it was possible in certain persons to produce

herpes labialis experimentally by hypnotic reproduction of painfully toned emotions, but when mere suggestion was given that herpes should develop the eruptions did not occur. The authors infer from their observations that a decrease in the protective forces caused by the painfully toned emotion predisposes to the development of the infection. That such effects should be readily induced is not surprising when we consider the close relation of the thalamus and its connexions with affective or emotional reactions and the fact that the hypothalamic nuclei are the "head ganglia" of the autonomic system. The tachycardia, pilomotor effects, and relaxation of sphincters associated with fear are examples of this relationship in everyday life, while the very numerous physical symptoms of anxiety states, the common psychoneurotic syndromes of train sickness, enuresis, etc., and the obstinate constipation associated with melancholia are examples in the psychopathological field.

In the second group, derangements of bodily function may be brought about by the modifications of postural tone and activity of the skeletal musculature. In everyday life these are exemplified by unconscious gestures of defence, defiance, or supplication, which may be exhibited quite without the subject's awareness when he is in the grip of strong emotion. In the psychopathological field these changes are probably based on symbolic reactions, and are illustrated by the conditions so graphically described by Halliday (1937) in which stiffness and pain were shown to be bodily expressions of such sentiments as "This gives me a pain in the neck," "I must keep a stiff back in face of this," and so on. The most marked condition of psychogenic alteration of tone and action of voluntary muscles is, of course, in the katatonia of schizophrenia, though whether this peculiar condition is due to some complicated form of symbolic expression or to some changes, presumably reversible, in the striate motor system, or both, is not yet determined.

It is clear that in relation to the first type of effect of emotional derangement we shall have to consider such derangements as being directly in the line of causation of actual chronic rheumatic conditions, presumably by the intervention of the autonomic nervous system, influencing local and general circulation and the secretion of both internally and externally secreting glands and possibly the metabolism of purines, carbohydrates, and perhaps fats. In the case of the second type, on the other hand, we shall be dealing with the unconscious simulation of chronic rheumatic conditions. Here the problem is really one of differential diagnosis, though how far a prolonged simulation may pass over into the actual condition is a question of great interest.

Hysterical Simulation of Rheumatism

My own interest in the second group was first aroused twenty years ago (Gordon, 1919) when working with Sir Arthur Hurst on cases of war hysteria. The most striking cases we then met with were those of soldiers with bent back, or camptocormia as the French called them. The following case described by Hurst (1919) was typical.

"A man of 31 who had always stooped slightly and had suffered from lumbago for twelve years developed a very severe degree of kyphosis as a result of falling out of a trap while home on leave from the front. He was treated by massage, blistering, and immobilization for two and a half months, and then by thermal baths and massage for two months, without any benefit. He was then admitted to a special hospital, where he still resisted treatment but where he was eventually cured by persuasion and suggestion by means of a specially constructed board, on which he could be relaxed and which was gradually raised into an erect attitude."

Here no doubt, as in all hysterical manifestations, the symptom served a definite purpose—that is, in preventing his return to the front—though it should be remembered this purpose is unconscious and such patients are not malingerers. I saw and was able to treat successfully many such cases, as well as cases of pain persisting after mild acute attacks of arthritis or fibrositis in which the active condition had obviously passed off. This condition of "nervous mimicry" has long been recognized. Probably Sir James Paget (1867) was the first to draw attention to it in print; but I believe that cases are not very uncommon in present-day practice and are often overlooked, while various forms of anti-rheumatic treatment are tried in vain. In the richer classes it is probable that many of the striking successes of the osteopaths and similar unorthodox practitioners are cases of this type. More recently Halliday (1937) has drawn attention afresh to this class of patient, laying especial stress on the symbolic significance of these symptoms, showing that they are employed to express a definite mental attitude and that the symptom is often useful to the patient in allowing him to avoid a situation or duty which is irksome.

Again, Booth (1937) suggests the symbolic significance of joints which are the seat of pain and stiffness—the ankle to avoid taking a false step, the jaw to avoid giving away secrets by imposing silence; and he quotes a specific case in which there was stiffness and pain of the hips and sacro-iliacs as a protest against intercourse and pregnancy, the condition clearing up after sterilization. Nissen, too (1934), remarks that arthritic reactions must be regarded as fundamentally purposive, since they provide an easy way for the feeble psyche to avoid the stresses of life.

Where physical signs are not found to bear out the patient's description of his subjective symptoms it is a sound rule for the physician to consider whether or not the symptom may serve a useful purpose for the patient, but it should be remarked that this purpose may not be obvious to the physician, and the patient will only give him a clue to it by his unconscious reactions. The stiff knee of the boy who does not want to play football or walk to school is a common enough example of a very simple kind. This is not always obvious, however, for sometimes there is no apparent object. An example of a less obvious purpose is the case of a girl who is prevented from going to dances or to ride because of severe pain in her back, and is never done bewailing the fact that she is unable to enjoy these pleasures. Further investigation, however, shows that in fact she is intensely sensitive about her tallness and has really persuaded herself that if she did go to a ball no one would ask her to dance, and that she would look ungainly on a horse. So, after all, the symptom is serving a purpose because it is saving her from humiliation. Again, a similar condition was found to cover a feeling of deep-seated guilt in another girl who had been kissed at a dance: this incident had been followed by an intense shame really dependent on a distrust as to where her own sexuality might lead her, though consciously she denied that she had any sexual feeling or anything but a horror of the whole business.

Abnormal Postural Tone leading to Chronic Rheumatic Changes

Our next problem is how far a prolongation or perpetuation of abnormal postures and consequent disturbances of the postural tone of joints and ligaments may

lead to permanent structural lesions and "real" rheumatic changes. That such structural changes are not so easily induced as might be expected was shown by a remarkable collection of cases described by Hurst (1919) in which all sorts of contractures, often of long duration, were exhibited, but which by the therapeutic test were proved to be hysterical and the contractures cured within a very short space of time. I myself have seen a man of 43 who, among other psychoneurotic symptoms, exhibited marked rigidity of the right tarsal and metatarsal joints, which had apparently existed for the best part of forty years. He stated that to the best of his knowledge he had never been able to make these movements, and ever since he could remember he had been unable to stand on tiptoe on that foot and had never been able to walk long distances or to run like other boys owing to this disability. In after-life he found that if he walked more than two miles he got very tired. In the great war he was twice rejected for the Army, and finally passed into the R.A.V.C., where he would not have to do much walking. On examination the extensor muscles of the foot were not atrophied and the peronei and tibialis anticus worked normally. A short period of persuasion and suggestion sufficed to give complete mobility to the foot and toes, so in his case it was evident that no permanent alteration had taken place.

Even where marked trophic changes have occurred with ischaemia, excessive sweating, etc., Hurst has shown that it is often possible to restore function completely by psychotherapy in a comparatively short period, but this possibility of quick cure would appear to be due to the non-intervention of other factors. These other factors are infection or perhaps toxaemia and degenerative changes. Hurst's cases referred to above were all those of relatively young men, probably with a reasonably good resistance to infection.

With, on the one hand, elderly people whose tissues are already the seat of degenerative changes and with, on the other hand, the "rheumatoid type," one of whose chief characteristics, to my mind, is a complete or almost complete lack of resistance as shown by the profound changes in the sedimentation rate and the Arneth count in the blood, a very different result may ensue, and what started as a hysterical unconscious simulation may end as a true rheumatic manifestation.

Psychogenic Rheumatism

It is obvious that in all so-called psychosomatic conditions the fundamental process is an emotional derangement which, acting through the thalamic and hypothalamic centres, affects the autonomic balance. But the location of the autonomic imbalance is by no means general, and it sometimes results in an asthma, sometimes in a peptic ulcer, sometimes in a dysmenorrhoea, and sometimes in joint or muscular changes. Hence, at least until our knowledge is more complete, it is necessary to postulate an organ inferiority which "localizes the disturbance and its effects."

Rheumatoid Arthritis

How far is there evidence that an emotional factor is of importance in the aetiology of this condition? In attempting to answer this question we are faced with the difficulty which is obvious in so many such inquiries. We may find that a given factor is present in a certain percentage of cases, but we have no real guarantee that among many aetiological factors this particular factor has any significance. For example, in a series of fifty cases of typical "true rheumatoid" arthritis it was found (Burt, Gordon, and Brown, 1938) that 26 per cent. followed emotional crisis, some as definite as the following: "sudden onset of the disease two months after his 'boss' cut his throat, the patient having walked into the room just as he was doing it." "A month before the onset a friend had attempted to murder his wife and two children. The patient sat up with him all night and tried to quieten him." But we have no knowledge as to whether quite as large a proportion of people who have had such emotional shocks fail to develop rheumatoid arthritis, and there is no statistical evidence as to how many of those who develop other diseases—for example, pneumonia—have experienced emotional shocks and strains of a like nature.

In spite of this doubt, however, many authors have insisted on the important significance of emotional strain in the genesis of rheumatoid arthritis. Thus Booth (1937) writes:

> "The histories of our patients before the beginning of the arthritic process can be summarized as follows. In childhood they were confronted by problems of adjustment which proved too difficult to be solved in a constructive manner. This resulted in a marked incapacity to find satisfaction in their relations with society, the family, and the opposite sex. Even material success did not relieve them of their nervous strain, because their drive to be active was in excess of their capacity to find useful channels for the release of their energy, due to their basic defensive attitude against the demands and risks of life. The tension which resulted from this situation was in fact released in a regressive physical way through general restlessness, travelling about, and neurotic neuro-muscular reactions."

Nissen (1934) states that 22 per cent. of 500 cases of arthritis could be classed definitely as having had sufficient emotional strain preceding the arthritic onset to warrant its being considered as an aetiological agent; while Jelliffe and White (1935) say: "The psychogenic discipline is also commencing to show that purely emotional reactions extend deep down in the individual's metabolic processes. . . . It is here considered absolutely imperative that such factors be evaluated in the study of some of the arthritides."

In Germany A. Jelinek (1937) and others have pointed out the interaction of psycho-physical reactions in arthritis, but the work of Swaim (1936) is most striking in this respect, for, starting from an orthopaedic approach, he says:

> "We have been so concerned with the disease picture that we may have overlooked the real causes of functional disturbances which are present. With a closer study of the mental and spiritual defects of a large number of rheumatoid cases I have found deep-rooted fears, worries, resentments, and strain to be the basic causes of their ill-health. Because of this new spiritual approach to these underlying conflicts I have begun to see that I have been missing a great (possibly the greatest) therapeutic force which we may ever find. I feel that we doctors have a unique opportunity to reach, and meet, people's deepest spiritual needs, which so often result in the functional disturbances which, in turn, are forerunners of organic diseases.
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> "Much of the future progress in the art of healing the body will come along lines that recognize, and have an answer for, the healing of the soul.
>
> "'More people are sick because they are unhappy than unhappy because they are sick.'"

Again (Swaim and Harris, 1938):

> "For many years we have believed that rheumatoid arthritis could be controlled only by complete treatment. Therefore, after working out an orthopaedic method of preventing

deformities we turned to the well-known psychogenic factors. These have been found present in 66 per cent. of the cases, according to Dr. Stanley Cobb of Boston. Since unhappy family relationships are responsible for half of these factors, we collected data about reactions to human relationships. We find that the emotional response of fear, resentment, worries, and inner conflicts are more important than the environmental factors themselves. These negative emotions were the result of personality forces and habits, such as selfishness and self-centredness and self-protectiveness. Spiritually the rheumatoid arthritics studied had no vital faith and were therefore fearfully facing life's responsibilities alone. The correlation of these negative reactions with the joint flare-up was astonishing in the 275 cases under observation. In looking for the answer to the self-centredness which resulted in fear and resentment we found the solution begins in the honest facing of themselves with the doctor, and with his aid ends in development of a vital faith. A deep religious faith is the most effective faith, provided the doctor himself has such a vital faith to give. Five years of observation has convinced us that just facing these negative attitudes is not enough to overcome them, but with the development of a faith fear goes, improved health follows, and, most important of all for the future welfare of the patient, personality changes take place. We find that unless a patient can return to his old environment improved in body, intelligently understanding his adjustment problems, and with a faith which gives confidence for the future, he has no real guarantee of permanent health. All of our combined medical and orthopaedic skill is vitally essential for recovery, but because of the psychogenic factors found in most rheumatoid arthritics we will fail to prevent recurring attacks unless we develop, in the patient himself, a power to control his negative emotional reactions. From these observations we are convinced that the control of the psychogenic factors in chronic rheumatoid arthritics lies in the development of a vital faith, which will meet these needs, with its positive philosophy for living."

If we allow that emotional shocks or strains are aetiological factors of importance in the genesis of rheumatoid arthritis, we must expect that they will exert their influence by inducing upsets of autonomic activity, and if rheumatoid arthritic patients show a high degree of autonomic instability it is reasonable to suppose that at least some of this owes its origin to emotional factors.

The typical onset of rheumatoid arthritis after emotional strain may be exemplified by the following case.

A young woman of 24, who for some years had been at home nursing her invalid mother, began to develop swellings in the fingers about six weeks after the latter died. These were symmetrical, and were characterized by tension in the joints and pain or stiffness in using her hands. These began to sweat, and both the muscles and subcutaneous tissue wasted and the skin became tense, shiny, and blue. The same changes, to a lesser extent, occurred in the feet. Some months later she began to have trouble in her elbows and knees, and eventually in her shoulders. The sedimentation rate was rapidly much increased. Her blood pressure was 138/86. Her blood picture showed: haemoglobin, 74 per cent.; red cells, 3,800,000 per c.mm.; white cells, 5,400 per c.mm., of which 2,800 were granulocytes and 2,600 lymphocytes. Her appetite was poor, and she was subject to attacks of diarrhoea.

In the series of fifty cases of undoubted "true rheumatoid" arthritis referred to above it was found (Burt, Gordon, and Brown, 1938) that there were ample signs of autonomic imbalance, especially of the sympathetico-tonic type, and of course fear produces a swing to the sympathetic and away from the vagal side. Thus vaso-constriction was present in 70 per cent. of cases, and definitely abnormal sweating, local or general, in 92 per cent. The gastro-intestinal segment, however, was not markedly affected; thus the barium enema picture was normal in 64 per cent., while 36 per cent. showed some dilatation of the colon, though none were true cases of megalocolon. However, no cases of spastic colon (vagal effect) were met with. The blood pressure of fifty rheumatoid cases was slightly higher in both systolic and diastolic pressure than that of fifty normal controls, but the difference was only just significant.

Using the oculo-cardiac test in fifty cases of rheumatoid arthritis and fifty control cases, the following results were obtained:

	Total Number	Sympathetico-tonia	Normal	Vagotonic
Rheumatoid cases ..	50	33	17	0
Controls	50	20	22	8

Statistically this swing to the sympathetic side is significant. The atropine test was also applied, but did not appear to be reliable. This unreliability has been found by other observers.

The autonomic imbalance associated with rheumatoid arthritis has been noticed by many authors, notably by Pemberton and Scull (1938), who have shown abnormality in capillary circulation, and Wright and Pemberton (1930) in temperature adjustments; but can such vascular variations cause permanent or semi-permanent changes in articular or peri-articular structures? As has been mentioned above, Hurst was inclined to deny this, but there are examples of such changes which are apparently due entirely to peripheral nerve influences. The neuro-arthropathies usually referred to as Charcot's joints, which are met with but are by no means universal in tabes and syringomyelia, are suspect, because in the view of many authorities they are ordinary cases of osteo-arthritis in which the absence of the defensive mechanism of pain has allowed a much greater strain to be put on the joint, with a consequent much greater destruction. More important evidence may be obtained, however, by the observation of cases of poliomyelitis. During the period in which limbs are commonly immobilized in the early stages for the purpose of resting the inflamed neuro-muscular apparatus it is common to find that one or more joints have become stiff and painful when first the patient is taken off the splint, but in the majority of cases this passes off in a very short time. In others, however—and this was especially marked in a series of cases observed by me in late 1937 and early 1938—the joints were tender, slightly swollen, stiff, and painful for weeks, and were restored to normal only after prolonged and careful treatment. Presumably no one would suggest that there is any primary involvement of joints in poliomyelitis, so that this condition must assuredly have been due to autonomic influences, though of course in this instance probably not of emotional origin.

The full and convincing proof of the psychogenic origin of joint changes of the rheumatoid type would be afforded if it were possible to cure the condition by psychotherapy alone; but, so far, I know of no authentic cases in which this can be claimed without dispute. Still, in many instances rheumatoid arthritis is a self-limiting disease, and if care has been taken in the early stages to avoid crippling deformities it is wonderful how large a measure of recovery may take place even in severe cases. Personally I would unhesitatingly support Swaim and Harris's contention, already quoted, that this recovery and freedom from relapse depends in large measure on the patient's degree of emotional stability and on the satisfactoriness of his philosophy of life.

Other Forms of Chronic Rheumatic Disease

Those who have considered the psychogenic factor in arthritis have as a rule confined their attention to rheumatoid arthritis, but the other forms of rheumatism are worth consideration.

If osteo-arthritis is due to degenerative changes, to what extent are these degenerative changes due to a negative emotional attitude towards life? There is a lot of truth in the adage "A man is as old as he feels," and the person who keeps a youthful spirit is likely to keep supple joints. However that may be, there can be no doubt whatever that the amount of pain and stiffness exhibited by a case of osteo-arthritis depends just as much on the attitude towards life as on the degree of bony or ligamentous change disclosed by the radiograph, perhaps even more. I can recall a lady with a definite but mild degree of osteo-arthritis who is in a fair way to become a bedridden invalid; but the real cause of this is a slightly senile husband, who in addition to being a querulous bore has a perseverant idea that his wife ought never to walk less than a mile and a half a day, wet or fine, winter or summer. I can recall another old lady of 78 summers (not winters) who has an advanced osteo-arthritis of her hip, but who with the help of a stick almost hurls herself about her garden with an ungainly but effective gait, greeting the unfolding of the seasons with an intense delight.

Fibrositis is unquestionably influenced by emotion. Two of the worst cases of fibrositis I have met with in young people were in the wife of an airman who had had two bad crashes and was still flying, and in an over-conscientious schoolmistress who was involved in a pseudo-homosexual entanglement.

A striking instance of the effect of emotional strain on the disability produced by fibrositis is the following case.

A young married woman of 26 complained of such a degree of pain in her hip and shoulders that she was in continual distress and unable to do her housework except with the greatest difficulty. She was found to be suffering from slight but definite fibrositis in these regions, and conventional treatment by heat and massage was undertaken. This, however, only made her worse. Examination showed that she was quite abnormally sensitive to pain of all sorts, and psychological examination disclosed a confused medley of resentments against thwarting of her natural impulses during childhood and adolescence. She was the youngest of the family, and definitely of the sensation type, ready to enjoy all sorts of harmless sensuous experiences from which she was rigidly "protected" by her overanxious mother, while she was snubbed by a serious-minded sister who had no use for "men, dances, or parties of any sort." She had developed a sense of guilt with regard to her wish to indulge her "sensuous" pleasures, and her pains were serving as a protection against her doing so. However, when the situation became clear to her and she realized that as a married woman she was free from the restraints of home she began to open up, and of her own volition started learning tap-dancing and began to realize that she could do things, thus freeing herself from her inner moral inhibitions and from the inhibitions imposed by her pains.

Later on fibrositis depends in large measure on what Weil (1936) has called micro-traumatisms, the effects of flat-foot, knock-knee, mild kyphosis, etc.; and how often are such conditions acquired in adult life due to asthenic emotions and a hopeless attitude towards life!

Is the gouty colonel irritable because he has gout or gouty because he is irritable? That he is both no one will deny. A recent case has struck me forcibly. The patient was sent to me as a severe alcoholic. I have no doubt that the basis of the story is a cyclothymia, a mild degree of manic-depressive psychosis. The sequence is: depression—loss of interest in work—irritability—alcohol—much alcohol—gout—less alcohol, diminution and disappearance of gout—cheerfulness—quite hard work—depression; and so round again. If it were possible to break the sequence—a big "if" now I am afraid, as it has been going on a long time—I am reasonably confident there would be no more gout. Emotion certainly alters metabolism—of that we can be sure—and it may well be that in some cases this change is set in motion by the mood of the patient.

Conclusion

From all this it is fairly evident that we have not advanced very far in any exact knowledge of the psychogenic factors in chronic rheumatism, yet we have probably got far enough to make it clear that here is a field which badly needs further exploration, and to make us realize that if we want a healthy nation the happiness of the greatest number must be the goal of social service. Chase out the "jitterbug," and other bugs won't find it nearly so easy to thrive.

REFERENCES

Abrams, N. R., and Bauer, W. (1938). *J. Amer. med. Ass.*, **111**, 1632.
Aschoff, L. (1938). *A Survey of Chronic Rheumatic Diseases*, p. 217, London.
Booth, G. C. (1937). *J. nerv. ment. Dis.*, **85**, 637.
Burt, J. B., Gordon, R. G., and Brown, A. R. (1938). *A Survey of Chronic Rheumatic Diseases*, p. 137, London.
Cecil, R. L., and Angevine, D. M. (1938). *Ann. intern. Med.*, **12**, 577.
Gordon, R. G. (1919). Seale Hayne Neurological Studies, pp. 228, 296, London.
Halliday, J. L. (1937). *British Medical Journal*, **1**, 213, 264.
Heilig, R., and Hoff, H. (1925). *Dtsch. med. Wschr.*, **51**, 1615.
Hurst, Sir A. F. (1919). Seale Hayne Neurological Studies, pp. 43, 60, London.
Jelinek, A. (1937). *Med. Klinik*, **33**, 502.
Jelliffe, S. E., and White, W. A. (1935). *Diseases of the Nervous System*, New York.
Nissen, H. A. (1934). *New Engl. J. Med.*, **210**, 1109.
Paget, J. (1867). *British Medical Journal*, **1**, 1.
Pemberton, R., and Scull, C. W. (1938). *A Survey of Chronic Rheumatic Diseases*, p. 107, London.
Polak, C. (1938). Ibid., p. 149.
Swaim, L. T. (1936). *C. r. Ve Congr. intern. Rhum.*, p. 135.
—— and Harris, G. G. (1938). *Proc. Congr. Rheum.*, p. 212.
Weil, M. P. (1936). *Quart. Bull. Hlth. Org. L.o.N.*, **5**, 252.
Wittkower, E. (1935). *J. ment. Sci.*, **81**, 533.
Wright, L. M., and Pemberton, R. (1930). *Arch. intern. Med.*, **45**, 147.

The Institute of Hospital Almoners was founded thirty-one years ago, and its work has grown steadily ever since. In the report for 1938 it is stated that there are now 370 almoners at work in this country and about 270 students in training. In that year twenty-eight new posts of this kind were instituted, some in centres which had been without the benefit of certificated almoners working to aid the financing of voluntary hospitals as well as to secure the maximum benefits for the poor and needy as regards hospital treatment of all kinds. An almoner was appointed last year to the post of Government welfare officer in Jamaica, and at the end of that year there were vacancies to be filled in Hong-Kong, Malta, and Australia. The Institute has an executive council in London and local selection and advisory committees in eight other university centres. The preliminary part of the training for the certificate is undertaken at a university, either in a degree course which includes the social science subjects, or more usually in the two years' work required for a certificate or diploma in social science with the practical work which that includes. It is not until the student has secured the theoretical qualification that she passes to the third and final year of specialized training in those hospitals in which certificated almoners undertake the training of students. Before she is ready for this training the student must have had experience in general family case work. Particulars may be obtained from the Institute, the offices of which are situated in Tavistock House North, Tavistock Square, London, W.C.1.

EXAMINATION OF GASTRIC CONTENTS FOR TUBERCLE BACILLI IN ADULTS

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As far back as 1898 Meunier showed that tuberculous children often swallowed their sputum. By washing out the fasting stomach he obtained mucoid material looking like sputum in which tubercle bacilli could be demonstrated by the method of direct smears. This work attracted no attention until Armand-Delille and Vibert reintroduced Meunier's technique in 1927. Since then numerous workers have published results obtained by this method and its modifications, thus confirming the value of the method in the diagnosis of tuberculous pulmonary lesions (both in children and adults) when no sputum is available for examination. Both culture and animal inoculation of the gastric contents have been carried out, examination by direct smears having proved unreliable.

In a recent paper Belgorod and Schain (1939) have shown that the ordinary methods of sterilization of the stomach tube and other utensils may lead to erroneous positive results when the direct-smear method is used for examination of the gastric contents, because fine particles containing tubercle bacilli may adhere to the interior of the tube or glass vessels and become dislodged when the latter are used for another patient. The possible confusion with acid-fast saprophytes is another strong argument against the use of the direct-smear method in connexion with the gastric contents unless animal inoculation or culture is practised in addition.

The examination of the gastric contents in children is now established as a routine method of investigation in many Continental clinics; in this country, apart from the research work of Collis and Brockington (1933), the method is used to our knowledge in at least two institutions—in the Highwood Hospital for Children (L.C.C.) and in connexion with the Birmingham Tuberculosis Scheme. Levin's monograph (1934) contains in addition to his own valuable investigations a detailed review of the literature up to that time. Saenz and Costil (1936) in their monograph on the bacteriological diagnosis of tuberculosis give additional data.

The use of the method in adults has attracted less attention. Armand-Delille, Lestocquoy, and Vibert (1930) were the first to suggest its employment in adults. The following authors have since then published their results: Elizaguirre and Uralde (1931), Clausen (1931), Ulmar and Ornstein (1933), Gad (1934), Lester (1934), Nasta, Blechmann, and Bacanu (1934), Cervino and Radroguez (1934), Sayé (1935), Menzel and Schramek (1935), Stiehm (1937), Gullbring and Levin (1937), and Stadnichenko and Cohen (1937).

Gullbring and Levin (1937) review the literature on the subject and describe their own results in 348 patients. They carried out direct examination, culture on Hohn's medium after treatment with 10 per cent. sulphuric acid, and animal inoculation. They found the last method much superior to that of culture, though a few positive results were obtained by culture alone. A single negative gastric examination was not proof of absence of bacilli; when the gastric lavage was repeated once or twice the number of positive results was increased. They therefore advise that the stomach be washed out on three successive days, but to save cost the washings should be mixed together before examining. The 348 patients investigated by them either did not produce any sputum or their sputum showed no bacilli on direct examination. (The latter group was included in the belief that expectorated material does not always come from the bronchi.) In 192 patients (55 per cent.) tubercle bacilli were found in the gastric contents. With fresh infiltrations the probability of finding tubercle bacilli increased proportionately to the extent of the radiological shadow. Ninety-four per cent. of patients showing cavities not associated with sputum or associated with sputum in which tubercle bacilli had not been demonstrated by the direct method gave a positive result in the stomach contents. Tubercle bacilli were found in no fewer than thirty-four out of 106 patients (32 per cent.) showing so-called benign fibrosis of the apical region (generally considered as "closed phthisis") or healed lesions. Finally, bacilli were demonstrated in seven out of twenty-five patients (28 per cent.) with pleural effusion: gastric lavage thus appeared to be an excellent method of detecting parenchymatous involvement in those cases where the fluid obscures the lung lesion.

Stadnichenko and Cohen's work (1937) on 600 patients in a sanatorium showed that in 46 per cent. of those with clinical tuberculosis "who had never shown a positive sputum" bacilli were demonstrated when the gastric sediment was injected untreated into guinea-pigs; 39 per cent. of these were positive on smear of the gastric sediment.

No results of the use of this method in adults have been published in this country. The method was first introduced in 1936 by one of us (G. G. K.) and subsequently also used by the other (A. G. H.) at the County Sanatorium, Clare Hall, Middlesex. This paper is based on the first 114 patients so investigated.

Technique

The patient is given no food or drink after 10 p.m. the previous day. The contents of the stomach are removed as soon as possible after waking in the morning; this time is chosen because the material is not then mixed with food and because during the night the gastric peristaltic movements are much diminished and the more viscid contents tend to collect in the organ. A fine stomach tube is passed. The stomach contents can be aspirated at once; as, however, the material obtained in this way is generally not more than a few cubic centimetres, the method adopted by us was to inject through the tube by means of a funnel or container and rubber tubing about 6 to 8 oz. of warmed boiled sterile water or saline. The gastric contents are mixed by injecting air by means of a 20 c.cm. syringe attached to the stomach tube. The syringe should be sterile, and in detaching the container or funnel, and in attaching the syringe, care must be taken not to contaminate the distal opening of the stomach tube with the fingers. The stomach contents are then aspirated by siphonage or by the syringe into a sterile bottle. Particular care should be taken to obtain the more viscid residual contents.

The bottle and its contents were sent to Dr. Herbert Rogers at the North Middlesex County Hospital, to whom we are indebted for the following notes of the subsequent examination of the material.

The lavage is allowed to stand overnight, and the supernatant fluid removed on the following morning. Five c.cm. of the deposit is placed in a sterile test-tube and about 20 c.cm. of 4 per cent. NaOH added. This is incubated for twenty minutes (or until it appears to be homogeneous) and shaken frequently. The specimen is then centrifuged for ten minutes and the supernatant fluid decanted. The deposit is

now neutralized, using 8 per cent. HCl and litmus paper as an indicator. Several loopfuls are inoculated on to Loewenstein-Jensen medium and incubated at 37° C. If the culture remains sterile for one month a negative report is returned. About 15 to 20 c.cm. of the first sediment which has accumulated overnight from the "gastric lavage" is sent to Dr. Benians at the Prince of Wales's Hospital, Tottenham, for guinea-pig inoculation.

Results

The material investigated comprises 114 patients (fifty-five male, fifty-nine female). Table I indicates the number of lavages carried out on each patient.

TABLE I

Times Lavaged	Patients	No. of Lavages
Once	82	82
Twice	19	38
Thrice	9	27
Four times	4	16
	114	163

In Table II are summarized the results obtained by culture and by inoculation.

TABLE II

	Guinea-pig Inoculation	Culture	No.
Positives (57)	Positive	Positive	15
	"	Negative	28
	Negative	Positive	10
	Guinea-pig died *	"	1
	Positive	Contaminated	3
Possible positives (12)	Negative	Contamimated	7
	Guinea-pig died *	Negative	4
	" "	Contaminated	1

* Death soon after inoculation from intercurrent infection.

The number of positive results is therefore 57 in 163, or 35 per cent. (minimum), to 69 in 163, or 42 per cent. (possible maximum).

Comment.—The results appear to confirm the conclusion of Gullbring and Levin that animal inoculation is more sensitive than culture, but that positive results are often obtained by culture alone. It is clear that both methods should be employed.

Analysis of Results in Relation to Diagnosis

In fifty-five of the patients there was no sputum or the sputum on admission proved negative by direct and cultural methods. (Before admission the sputum had been negative, or there was no record of its having been examined; and in two cases it had been reported as positive, but on admission to the sanatorium the patients were found to have no sputum or it was scanty and negative by direct and cultural methods.) Of these fifty-five patients gastric lavage proved positive in seventeen and negative in thirty-eight.

POSITIVE GROUP (SEVENTEEN PATIENTS)

(*a*) *Eleven Patients had No Sputum.*—In these the clinical diagnosis proved to be pleural effusion (two patients), chronic pulmonary tuberculosis (six), primary tuberculous infection (one), chronic miliary tuberculosis (one), advanced bilateral pulmonary tuberculosis (one).

(*b*) *Six Patients had Some Expectoration.*—The following is a brief résumé of the antecedent bacteriological examinations and the clinical diagnosis:

Patient 1: direct negative once (saliva only), positive before admission; pulmonary tuberculosis. Patient 2: positive before admission, three direct negatives, then no sputum; pulmonary tuberculosis. Patient 3: three direct negatives, then scanty sputum; pulmonary tuberculosis with artificial pneumothorax. Patient 4: three direct negatives, negative culture; pulmonary tuberculosis and pleural effusion. Patient 5: five direct negatives; pulmonary tuberculosis and pleural effusion. Patient 6: three direct negatives, negative culture; pleural effusion.

NEGATIVE GROUP (THIRTY-EIGHT PATIENTS)

In one patient the second gastric lavage proved positive, but the first time the guinea-pig had died. In a second patient tubercle bacilli were found in expectorated material one week later (a case of advanced pulmonary tuberculosis). In a third patient the gastric lavage proved positive three months later (patient first admitted with an effusion). The diagnosis in these thirty-eight patients was as follows.

(*a*) *Nineteen were proved subsequently not to be suffering from pulmonary tuberculosis.* The diagnoses were: bronchiectasis (one), lymphadenoma (one), diabetes and pulmonary neoplasm (one), resolving pneumonia (one), tuberculosis contact (one), healed tuberculosis of the spine (one), erythema nodosum (one), bilateral spontaneous pneumothorax (one), pleurisy or pleural effusion (eleven).

(*b*) *In the remaining nineteen patients the subsequent clinical diagnosis was chronic pulmonary tuberculosis.* The following are brief notes of these patients. (A.P. = artificial pneumothorax. S.R. = sedimentation rate: Westergren, 1 hour. I.P. = in-patient. L. = left side. R. = right side. G.L. = gastric lavage.)

1. Male, aged 19. Admitted with R.A.P. induced 6 months before. Good collapse; S.R. = 2; apyrexial. Developed effusion, otherwise uneventful progress until discharge after 4½ months.

2. Female, aged 20. Admitted with L.A.P. induced 6 months before. Adhesions, but no obvious cavity. Slight pyrexia (no fluid); S.R. = 6. Adhesions cut, uneventful progress; discharged after 7 months.

3. Male, aged 15. Admitted with L.A.P. induced 5 months before. Apyrexial; S.R. = 6. Diabetes mellitus. Good collapse, no fluid; uneventful progress until discharge 6 months later.

4. Male, aged 19. Admitted with extensive bilateral mottling, ? small cavities. Pyrexial; S.R. = 93. Bed rest for several months, sanocrysin. L.A.P. induced 6 months after admission, when R. lung almost cleared and cavity obvious on L. I.P. for 15 months. Six months after discharge returned with fresh cavity at R. apex.

5. Male, aged 25. Admitted with calcified foci and linear shadows in R. upper zone, and nodular mottling in L. upper zone. S.R. = 2; slight pyrexia. Bed rest and sanocrysin. I.P. 9 months. On discharge, slight linear shadows in both upper zones.

6. Male, aged 36. Admitted with mottling and linear shadows both apical regions; ? cavitation L. apex. Apyrexial; S.R. = 6. Routine sanatorium regime. I.P. 3 months. On discharge, very little radiological change.

7. Male, aged 24. Discovered as contact. Admitted with mottling and definite small cavity in L. upper zone. No pyrexia; S.R. = 11. L.A.P. G.L. negative. Adhesions cut. Scanty negative sputum (3 examinations); G.L. negative. Then good collapse. I.P. 6 months. Discharged with good L.A.P., S.R. = 2.

8. Male, aged 17. Admitted with L.A.P. (adhesions and small cavity visible), and scattered mottling all zones (R.). No pyrexia; S.R. = 5. Adhesion-section; good collapse; sanocrysin. On admission, G.L. negative. Five months later G.L. negative. I.P. 10 months. On discharge, good L.A.P., S.R. = 2.

9. Female, aged 21. Admitted with extensive bilateral disease, ? small cavities. Pyrexial; S.R. = 36. Tuberculous

laryngitis. One week later coughed up some sputum which was positive. Died 5 months later.

10. Female, aged 15. Admitted with mottling L. upper zone. A contact. Afebrile; S.R. = 10. Bed rest. Discharged 6 months later with shadows harder; S.R. = 4.

11. Female, aged 16. Admitted with linear shadows R. middle zone. Apyrexial; S.R. = 4. Had had R.A.P. abandoned after 6 refills. Routine sanatorium treatment. On discharge 6 months later, shadows unchanged; S.R. = 2.

12. Male, aged 20. Admitted with mottling and definite cavitation L. upper zone. Slight pyrexia, S.R. = 2. L.A.P. and adhesion-section; good collapse. Uneventful progress. I.P. 3 months. Discharged himself; S.R. = 2.

13. Male, aged 32. Admitted with R. pleural effusion and linear shadows upper half both lungs, heart and mediastinum to R. No pyrexia; S.R. = 23. Bed rest and routine regime. I.P. 9 months. On discharge, shadows much less marked, pleural thickening R. base, S.R. = 1.

14. Male, aged 22. Admitted with R. pleural effusion and mottling in R. upper and middle zones. No pyrexia; S.R. = 17. Bed rest; I.P. 6 months. On discharge, effusion gone, linear shadows R. apex, S.R. = 2.

15. Male, aged 19. Haemoptyses. Admitted with mottling and cavitation L. upper zone. Afebrile; S.R. = 2. L.A.P. Adhesions, not cut, but cavity closed. I.P. 5 months. On discharge, L.A.P. with apical adhesions, S.R. = 1.

16. Male, aged 15. Admitted with L. pleural effusion and mottling L. upper zone. Slight pyrexia; S.R. = 8. Bed rest. I.P. 5 months. On discharge, linear shadows only L. apex, S.R. = 4.

17. Male, aged 26. Admitted with linear shadows both upper zones. Had already had 3 months' bed rest and sanocrysin. Apyrexial; S.R. = 2. Routine regime and sanocrysin. I.P. 6 months. On discharge, linear shadows only, S.R. = 2.

18. Female, aged 28. Admitted 4 months after total thoracoplasty. Uneventful course; I.P. 3 months.

19. Female, aged 34. Admitted with mottling and linear shadows R. upper zone, and linear shadows extreme L. apex. Slight pyrexia; S.R. = 25. Bed rest. I.P. 8 months. On discharge, hard shadows R. apex, S.R. = 8.

Comment.—Clinically there was no definite evidence of activity in Cases 1, 2, 3, 6, 11, 17, or 18, so that a negative gastric lavage might well have been expected. In Cases 5, 8, 10, 13, 14, and 16 the clinical evidence suggested activity, and in some of these patients a positive gastric lavage might have been expected. In Cases 4, 7, 9, 12, 15, and 19 there was definite radiological evidence of cavitation or definite clinical evidence of activity, and a positive gastric lavage ought to have been obtained. The conclusion, already formulated by Gullbring and Levin (see above), is therefore justified, that while in a large proportion of patients with active pulmonary tuberculosis, even when limited in extent, a positive gastric lavage is obtained in the absence of sputum, in an appreciable proportion of such patients the gastric lavage is negative. A simple negative gastric lavage cannot therefore be accepted as evidence of the absence of active disease.

Analysis of Results in Relation to Treatment

This group comprises patients who on admission to sanatorium were positive by direct smear, on culture, or by gastric lavage, and who subsequently were sputumless (thirty-five patients) or in whose sputum no bacilli could be found by direct or cultural methods (twenty-five patients). The results are shown in Table III, where is also indicated the relation of the results to cavitation seen radiologically.

Comment.—Among forty-eight patients with no radiological evidence of obvious cavitation the gastric contents were positive in eighteen (37 per cent.). Among twelve patients with radiological evidence of obvious cavitation the gastric contents were negative in seven (58 per cent.). Examination of the gastric contents thus appears of much value in treatment in the absence of radiological evidence of cavitation. Negative gastric contents may, however, be found with radiological evidence of obvious cavitation. As it has already been shown that a single negative gastric lavage does not exclude active disease the possible deduction—that the diagnosis of cavitation on radiological appearances is unreliable—is not justified.

TABLE III.—*Patients After Treatment (Positive on Admission)*

No Sputum		Sputum Negative (Direct or Culture)	
(a) G.L.+	15	(c) G.L.+	8
(b) G.L.−	20	(d) G.L.−	17

Groups a + c (= G.L.+)	Obvious cavity	5
" " "	No obvious cavity	18
Groups b + d (= G.L.−)	Obvious cavity	7
" " "	No obvious cavity	30

Gastric lavage of some of these patients was carried out two or more times during their stay at the sanatorium—twice in nineteen, three times in nine, and four times in four: brief notes of these last two groups follow, to indicate the connexion of the findings with certain features in the clinical course.

GASTRIC LAVAGE THRICE

1. Female, aged 27. Admitted with multiple cavities R. upper zone, mottling R. lower and mid-zones, and nodular shadows all zones L. Afebrile; S.R. = 42; sputum +. Eight months later, S.R. = 11, 3 direct negatives, 1 negative culture, sputum scanty. Considerable *x*-ray clearing 3 months later; G.L. +. Allowed up. Two months later, G.L. +. One month later, further improvement, G.L. +. One month later, S.R. = 13. Discharged. Six months later, S.R. = 26, new area of mottling R. mid-zone.

2. Female, aged 34. Admitted with mottling R. upper and mid-zones, cavity with fluid level in upper zone, slight mottling L. mid-zone. Pyrexial; S.R. = 32; sputum +; tuberculous laryngitis. R.A.P., adhesion-section, sanocrysin. Four months later, cavity still visible, L. side clear, S.R. = 23, sputum +. One month later, R. phrenic evulsion, laryngitis healed, 2 direct negative sputa, one positive culture, then sputum disappeared. One month later, no obvious cavity; allowed up. Two months later, G.L. negative. Two months later, G.L. negative. Two months later, G.L. negative.

3. Male, aged 18. Admitted with mottling R. lower zone, and mottling all zones L. with a cavity at L. apex. Afebrile; S.R. = 35; no sputum; G.L. +. Bed rest. Four months after admission, L.A.P. Sanocrysin. Two months later, G.L. +. Adhesion-section. Three months later, good L.A.P., R. lung practically clear, S.R. normal, G.L. negative. One month later, A.P. obliterating, L. phrenic crush, gomenol. Five months later, still in sanatorium, no symptoms, S.R. = 2.

4. Female, aged 26. Admitted with mottling R. upper third, afebrile, S.R. = 11, sputum +. Rest; sanocrysin. Four months later, sputum disappeared. One month later, G.L. negative. One month later, scanty sputum, +. *X*-ray, cavity L. apex, fibrosis R. One month later, L.A.P. Culture of sputum +. Then 3 negative sputa. G.L. +. No obvious cavity. Allowed up. Three months later, scanty sputum, 3 negatives, G.L. negative. Three and five months later as O.P., no cavity.

5. Female, aged 37. Admitted with widespread mottling all zones, small cavity R. mid-zone. Febrile; sputum +. Rest and sanocrysin. Four months later, much improvement. Obvious cavity R. mid-zone. R.A.P. unsuccessful. Three months later, no sputum, G.L. +. Two months later, G.L. +. *X*-ray, fibrosis R. upper zone, mottling L. upper zone. One month later, G.L. +. Allowed up. Two months later, sputum +, cavitation both upper zones. One month later,

L.A.P. and adhesion-section, good collapse. Four months later, sputum still +, S.R. = 54, waiting for surgical collapse.

6. Female, aged 34. Admitted with mottling and linear shadows R. upper zone, linear shadows extreme L. apex. Slight pyrexia; 3 negative sputa; G.L. negative. Bed rest. Three months later, shadows harder. One month later, G.L. negative. One month later, shadows harder, allowed up. Two months later, G.L. negative. One month later discharged, hard shadows R. apex.

7. Female, aged 26. Admitted with mottling all zones R., cavity R. upper zone, mottling all zones L. Sputum + before admission. Three negatives on admission, then no sputum. Sanocrysin. Three months after admission, G.L. +. Two months later, G.L. +, still cavity R. apex. R.A.P. started, but abandoned. Three months later sputum +. Two months later, R. extrapleural A.P.; scanty sputum, 2 negatives. Two months later, cavity smaller. One month later, discharged well, S.R. = 2.

8. Female, aged 19. Admitted with bilateral widespread fine mottling and linear shadows, no sputum, S.R. = 50. Two direct negatives, then positive culture. Rest. Sputum disappeared. Eight months later, G.L. +. Allowed up. Three months later, G.L. +. Four months later, G.L. +. Four months later, discharged well.

9. Female, aged 23. Admitted with mottling and probable cavity L. upper and mid-zones. Febrile, S.R. = 13; no sputum. G.L. +. L.A.P., adhesion-section. No sputum. One month later, G.L. negative. Good L.A.P., S.R. normal, allowed up. Three months later, G.L. negative. Two months later, discharged well, good L.A.P., S.R. = 16.

GASTRIC LAVAGE FOUR TIMES

10. Female, aged 28. Admitted with mottling both hilar regions. Febrile; S.R. = 45, no sputum. Two months later, G.L. +. Sanocrysin, bed rest. One month later, L. phrenic evulsion. One month later, G.L. +. One month later, G.L. negative, S.R. 9. Allowed up. Two months later, G.L. negative. Three months later, discharged, S.R. = 11, fibrosis L. hilar region.

11. Female, aged 27. Admitted with mottling and fibrosis all zones R., slight mottling all zones L. Afebrile, S.R. = 12, sputum + before admission. Sputum scanty and negative on admission. Rest, sanocrysin. Four negative sputa, negative culture. Four months later, negative culture. Gradually allowed up, shadows harder, no sputum. Two months later, G.L. +. Two months later, G.L. +. *X*-ray, mottling R. lower zone. R. phrenic evulsion. Two months later, G.L. negative. *X*-ray picture much improved following phrenic evulsion, but R.A.P. induced. One month later, G.L. negative. One month later, good A.P., S.R. = normal, no symptoms, discharged.

12. Male, aged 16. Admitted with mottling L. mid-zone. Sputum + before admission. Slight pyrexia, no sputum on admission. G.L. negative (culture negative, guinea-pig died). Six months later, improved after bed rest, but G.L. +. Allowed up. Two months later, G.L. negative. Followed shortly by acute illness, ? tuberculous bronchopneumonia, ? epituberculosis. L.A.P. unsuccessful. One month later, L. phrenic crush. One month later, scanty sputum, +. Further bed rest. Four months later, G.L. +. Six months later, G.L. negative, discharged well.

13. Female, aged 20. Admitted with mottling and cavitation R. upper third, mottling L. middle third. Afebrile, S.R. = 59, scanty sputum, +. Two months later, 2 negative sputa, then no sputum. Two months later, G.L. +. *X*-ray, mottling on R. more marked, cavity obvious, some clearing on L. One month later, R.A.P., adhesion-section, fairly good collapse, no sputum. One month later, G.L. negative, still occasional pyrexia, S.R. = 12, some adhesions still present. Three months later, G.L. +. Two months later, G.L. +. One month later, discharged, S.R. = 11, no symptoms. Five months later, readmitted for adhesion-section, good collapse. One month later, G.L. negative.

Comment.—Although necessarily very brief, the above clinical notes illustrate the value of examination of the gastric contents in two respects. It was almost of decisive importance in indicating the need for further collapse measures (Cases 3, 9, 10, 11, 12, and 13), and it was of assistance in establishing quiescence in the same patients later and also in Cases 2, 4, and 6. Case 1 was discharged apparently quiescent except for the fact that the gastric contents remained positive: this patient returned six months later with a fresh spread. No. 8 also was discharged apparently quiescent but with the gastric contents positive—six months after discharge she was still well. In both these patients the lesions were then apparently controlled, but in each there must have been a small chronic cavity discharging tubercle bacilli—a potential source of spread of disease, already demonstrated in Case 1.

Conclusions

Examination of the gastric contents for tubercle bacilli in patients who have no sputum, or in whose scanty expectoration no tubercle bacilli can be found by other methods, is of definite value both in the diagnosis and in the treatment of pulmonary tuberculosis. In connexion with treatment the method is of value in deciding on initial or further collapse measures and in establishing that a lesion is quiescent.

Examination of the gastric contents for tubercle bacilli by staining direct smears is unreliable. Animal inoculation is more sensitive than cultural methods, but positive results are often obtained when animal inoculation proves negative; both methods should therefore be used as a routine.

The negative result of a single gastric lavage is not reliable evidence of absence of active pulmonary tuberculosis.

In the present series, in no single case were tubercle bacilli found in the gastric contents when all other clinical evidence pointed against the diagnosis of active pulmonary tuberculosis.

The appreciable number of contaminated cultures and prematurely dead guinea-pigs in this series suggests that further improvements are to be sought either in the collection of the gastric contents and/or in the technique of the bacteriological examination.

There is little doubt that the universal application of the methods of culturing the sputum and examining the gastric contents would greatly alter current views as to the relative incidence of "open" and "closed" pulmonary tuberculosis.

Summary

The results of investigating the gastric contents of 114 sanatorium patients for tubercle bacilli are analysed. The value of the method in both the diagnosis and the treatment of pulmonary tuberculosis is shown. The limitations of the method are indicated.

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REFERENCES

Armand-Delille, P. F., and Vibert, J. (1927). *Presse méd.*, **35**, 402.
—— Lestocquoy, Ch., and Vibert, J. (1930). *Bull. Acad. Méd.*, Paris, **104**, 732.
Belgorod, S. H., and Schain, P. (1939). *Quart. Bull. Seaview Hosp.*, **4**, 182.
Cervino, Ramon Garcia, and Radroguez, E. Ramos (1934). *Rev. espan. Tuberc.*, **5**, 437.
Clausen, V. (1931). *Acta tuberc. scand.*, **5**, 379.
Collis, W. R. F., and Brockington, C. F. (1933). *Lancet*, **1**, 127.
Elizaguirre, E., and Uralde, F. L. (1931). *Rev. espan. Tuberc.*, **2**, 327.
Gad, U. (1934). *Nord. med. Tidskr.*, **8**, 1248.
Gullbring, A., and Levin, N. (1937). *Acta med. scand.*, **93**, 168.

Lester, V. (1934). *Amer. J. Dis. Child.*, **47**, 322.
Levin, N. (1934). *Acta Soc. Med. Suecanae*, **60**, 1.
Menzel, K., and Schramek, J. (1935). *Beitr. klin. Tuberk.*, **86**, 371.
Meunier, H. (1898). *Presse méd.*, **2**, 81.
Nasta, M., Blechmann, M., and Bacanu, C. (1934). Ibid., **42**, 1961.
Saenz, A., and Costil, L. (1936). *Diagnostic Bactériologique de la Tuberculose*, Paris.
Sayé, L. (1935). *Rev. Tuberc.*, Paris, 1 (Series V), 441.
Stadnichenko, A., and Cohen, S. J. (1937). *Trans. Amer. nat. Tuberc. Ass.*, **33**, 235.
Stiehm, R. H. (1937). *Amer. J. med. Sci.*, **194**, 340.
Ulmar, D., and Ornstein, G. G. (1933). *J. Amer. med. Ass.*, **101**, 835.

LONG DELAYED SECONDARY HAEMORRHAGE FOLLOWING APPENDICECTOMY

BY

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The death rate following and directly attributable to the operation for the removal of a chronically infected appendix is negligible, and there seems to be no reason why it should be anything else. That accidents and misfortunes must from time to time occur is obvious, and as the case here reported is a dramatic example of both, and at the same time appears from a review of the literature to be unique, I feel it is worth recording.

Case Report

A man aged 22 was admitted to a hospital in London on December 18, 1936, with a diagnosis of chronic appendicitis. Through a minute incision a chronically inflamed appendix was successfully removed, and the patient was discharged, apparently cured, on December 28.

On January 16, 1937, nineteen days later, he felt the desire to defaecate, and on doing so passed a considerable quantity of bright red blood, and felt very faint. He was put to bed and seen by his doctor, who ordered rest and quiet for two or three days. No further bowel action occurred until the 20th—that is, twenty-three days after the operation—when he again felt the desire to defaecate, and on doing so passed such a large quantity of blood that he became almost pulseless, and was admitted to the Erith Hospital shortly after. I saw him an hour later, when he was very pale, with a thready pulse of 140 and air hunger. His case presented, in fact, the classical appearance of a grave internal haemorrhage. There was no abdominal pain, and the abdomen moved freely on respiration. Some tenderness was present on deep pressure only, over the sigmoid colon, but no muscle guarding or rigidity. Peristalsis was audible in each quadrant of the abdomen, and there was no suggestion of free fluid in the general peritoneal cavity. A rectal examination was negative, except for the presence of bright blood on the examining finger-stall. I examined him with a sigmoidoscope, but found no cause for bleeding in the rectum or colon, and, further, the blood appeared to be coming from a point above the full length of the sigmoidoscope. The patient was accordingly given large doses of morphine and haemoplastic serum, and preparations were made for a blood transfusion. By daily small doses of morphine, limiting fluids by mouth to bare necessity, and feeding only with concentrated meat extracts in small quantities, he was kept comfortable and in a good condition for eight days without a bowel action. I had at this time made a diagnosis of a pedunculated adenoma somewhere in the colon, and was hoping that his condition would recover sufficiently for a barium enema to be given with a view to localizing the site of haemorrhage.

On January 28, however, thirty-one days after the operation, he suddenly asked for the bed-pan and had another severe haemorrhage, which nearly killed him. A blood transfusion was at once started, and I explored his abdomen through a long right paramedian incision just under one hour from the time of the haemorrhage. Rapid examination of the whole length of the colon showed it to be boggy and full of blood, and no tumour could be felt in the bowel wall. There were a number of recent adhesions round the appendix stump, which appeared to be in a state of more or less active inflammation. The caecum at the site of the stump was very oedematous and inflamed, and contained a mass within the caecal wall. This was opened up without difficulty with the exploring finger, and was found to be an abscess cavity, in the wall of which was a spurting artery of medium size. This was at once ligatured, the abscess cavity swabbed out with half-strength eusol, its opening into the caecum enlarged to ensure adequate drainage into the bowel lumen, and the caecal wall closed by two rows of Lembert sutures. The abdomen was closed without drainage in the usual way.

The patient made an uninterrupted recovery, was discharged three weeks later, and has had no further trouble. He wrote in April saying that he has recently been medically examined and found to be fit and well.

Survey of the Literature

A review of the literature and of the disasters which can overtake a patient following the removal of a chronically inflamed appendix does not reveal such a case so far as I am aware. Both reactionary and secondary haemorrhage after appendicectomy are, however, well described.

Hessert (1906) reports three cases that occurred well within twenty-four hours of operation, and describes in his technique a method of closure of the appendix stump that does not include passing a ligature round the stump, which was, however, invaginated. All three of his cases were associated with massive haemorrhage into the bowel and not apparently into the peritoneal cavity, and it would be safe to assume that the bleeding started from a crushed but unligatured appendix stump and not from the mesentery of the appendix. One of these cases was fatal. Pâtel and Murard (1912) report two fatal cases of haemorrhage from main iliac vessels, but both were classical examples of defective drainage of large abscesses placed in relation to big blood vessels. Auvray (1932) describes an unusual fatal secondary haemorrhage occurring on the eleventh day from the ileo-colic vein, but in this case there were both a localized abscess and general peritonitis.

Fiolle and Figarella (1934) describe two cases in which haemorrhage has occurred along the line of the drainage tube where appendicectomy had been performed during the acute stage. These authors review the literature and consider the possible explanation of these cases. In their opinion the following factors must be taken into consideration: (1) The employment of too strong antiseptics in the cauterization of the stump or in washing out the abscess cavity. (2) The continued spread of infection after operation. (3) Operative trauma in cases where a difficult retrocaecal appendix has been encountered.

That drainage tubes can also play a part is shown by the case of Caraven and Basset, in which the tube was found at necropsy to be lying over an erosion into a main vessel.

Commentary

Reverting to my own case, very few of the foregoing factors can be said to have applied. In the first place, the

operation was performed in a proper manner and the immediate convalescence was normal, and there can be no question, therefore, of the introduction of infection from without at the time of operation. The fact remains, however, that sepsis did subsequently develop in the region of a cleanly closed appendix stump. The following explanation suggests itself to me:

The patient was a well-built muscular man, and the appendix was removed through a minute pararectal incision made some distance from the site of that organ. Now if this had been a difficult retrocaecal appendix—and that seems likely from the previous history—its removal through such a small incision, even under the most excellent anaesthesia, must have presented very considerable mechanical difficulties, and I think it more than probable that a certain amount of pulling about, which would not have been necessary through a more extended approach, occurred, with the result that the tissues in the region of the appendix stump were bruised and their vitality lowered, so that infection from the lumen of the bowel gained entrance through the damaged caecal wall, with the subsequent development of an abscess cavity and erosion of a caecal vessel.

While admitting that great reputations are not infrequently constructed around small incisions, I would submit that the cosmetic result in such cases in no way justifies the turning of what ought to be a comparatively easy operation into a surgical hazard.

BIBLIOGRAPHY

Auvray, M. (1932). *Bull. Soc. nat. Chir.*, **58**, 1529.
Colp, R. (1926). *Surg. Gynec. Obstet.*, **43**, 627.
Fiolle, J., and Figarella, J. (1934). *Marseille méd.*, **1**, 322.
Gütig, K. (1931). *Cas. Lék. ces.*, **70**, 917.
Hessert, W. (1906). *J. Amer. med. Ass.*, **47**, 2009.
Pâtel, M., and Murard, J. (1912). *Rev. Chir.*, Paris, **46**, 117.
Popovici, A. N., Ghimpetzeano, M., and Valeano, A. (1937). *Rev. Chir. Bucuresti*, **40**, 88.

IS IT EVER NECESSARY TO KILL A LIVE BABY?*

BY

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In bringing this subject before you the first question to be asked is, What is a live baby? Do we mean by this a child before viability—that is, before the twenty-eighth week? I do not believe that a child is viable until then, in spite of the stories of infants of 2 lb. living and thriving. I mean to deal in this paper with the destruction of the fertilized ovum at any stage of the pregnancy. The title of the paper may be questioned, and it may be suggested that it should be: "Is it ever necessary to perform craniotomy on a live baby?" I prefer to retain the title chosen, for it emphasizes better the points to be considered.

Before delving into the absolute medical aspects we must consider the ethical question as raised by Aleck Bourne in July, 1938. At the time Mr. Justice Humphreys stated that the law has never been concerned with the ethics of abortion, but only with what is commonly called criminal abortion, and he explained that if a reputable doctor operated with a desire to save a patient's life, and after consultation with one or more colleagues, the law would never be so stupid as to suggest that he had committed a criminal offence. This fact has been well known for some time. The question as to the safeguarding of a patient's health or life is a difficult one, and in my opinion a wrong argument was raised when it was suggested by one of the lawyers that rheumatism was only dangerous to health, and cancer to life: surely there are many forms of rheumatism which, although not immediately dangerous to life, are sooner or later remotely so. The whole thing depends on the honesty of the doctors.

To come now to really obstetrical problems, it would seem unnecessary at the present stage of scientific knowledge to bring forward a paper with such a title as that chosen, but my excuse for its publication is that the public is apparently ignorant of the advances which have been made.

The First Twenty-eight Weeks of Pregnancy

During this period the problem may arise in various ways. First, I will deal with the toxaemias. Preventive obstetrics has done much to stamp out most of the severe cases, but one still encounters instances, especially those of hyperemesis gravidarum, which test the diagnostic skill of the obstetrician to the greatest extent. Pregnant patients should be seen as soon as possible, and they will not vomit if they are treated in the correct psychological manner; but if the friends of the patient tell her she should surely vomit when pregnant she will do so, and hyperemesis and death may result. Often we encounter the dreadful cases where constant vomiting and collapse are the prominent symptoms. In these cases of hyperemesis jaundice may be present, and a positive Fouchet test and van den Bergh reaction emphasize the dangers, while abundant albuminuria and a high blood pressure point still more to the enemy we are fighting—death. I do not intend to dwell much on the treatment of this condition when it is serious: prevention is the keynote; but when we *do* meet it what must we do? Starvation, glucose, insulin, hormone therapy, gastric lavage, jejunostomy are some of the treatments which can be studied in the textbooks. Termination of the pregnancy is indicated sometimes, but death will supervene in these cases if the induction is left too late. When, if ever, should the pregnancy be terminated? If in spite of thorough and careful treatment for three or four days the Fouchet or van den Bergh reaction is positive, if there is marked albuminuria, if the pulse rate is increasing and its volume is getting weaker, if the patient is getting jaundice, a timely removal will save life if not left too late, and it is my belief that if the patient is so ill that termination of the pregnancy is required and the necessity for it is decided on by a competent obstetrician the ovum is dead. The best way to terminate the pregnancy in a critical case is by either vaginal or abdominal hysterotomy, but if the patient is so located that the doctor does not feel justified in performing this operation he can curette in the first three months, but in the second three months the patient should be transferred to a maternity hospital.

Other toxaemias of pregnancy scarcely ever arise in the early months, but if a renal toxaemia occurs from the twenty-fourth to the twenty-eighth week the patient should be brought to hospital, where with ordinary care it will be possible to carry her on until the child is viable. I believe that it is easy at this period to mistake a toxaemia for a pyelitis, or at least a pyelonephritis, and the greatest care must be taken to make this diagnosis, which can easily be done by clinical and laboratory methods.

* Read before Lincoln Medical Society, February 23, 1939.

If a pseudo-accidental haemorrhage occurs before viability the ovum will be dead and the ordinary measures for dealing with this complication should be carried out. I use the term "pseudo-accidental" because I hold that the term "accidental" should not be used until after the twenty-eighth week. Students still write of it before this date.

Cardiac Disease

With compensation the question of induction does not arise, for the patient carries on with ordinary medical treatment. When not compensated the patient should not become pregnant; but if she does, induction during the first three months is occasionally necessary after consultation with a reliable physician, and with the written sanction of husband and wife. If this is not forthcoming the patient should be treated on general lines by a physician; many of these cases progress satisfactorily to full term, though a fatal result may ensue soon afterwards. The general opinion is that after the third month treatment of the heart condition is indicated. The labour is conducted on academic lines. The first stage is made as easy as possible by the use of hypnotics, and forceps are applied as soon as the operation can be done without shock to the patient.

Phthisis and renal disease are best treated on medical lines during pregnancy, and the labour conducted as for cardiac disease. It used to be thought that Caesarean section was indicated for heart disease and tuberculosis in pregnancy, but in my experience, and in that of many others, this operation it attended by a fatal issue within a few weeks in the large majority of cases. Severe Graves's disease may occur in the early months of pregnancy. This should be treated; when in nearly every case the patient will be carried on to full term. There are rare instances where the patient is rapidly going downhill after treatment for a month. The doctors must then decide if the pregnancy should be terminated, and if this is necessary it should be done after permission has been granted; this step, however, is seldom essential.

The Last Three Months of Pregnancy

We must now consider the question when the child is viable. Hyperemesis may occur in these months, but the situation is different, for there is no bar to termination of the pregnancy after appropriate treatment. Such conditions as cardiac disease and phthisis must be treated on medical lines, but if improvement is not taking place induction, not Caesarean section, should be done. The two main conditions which concern us now are disproportion and inertia. We begin by stating emphatically that under no circumstances is it justifiable to perform craniotomy on the live child: this procedure has never been suggested or allowed at the Rotunda Hospital. The ancient fear of killing the patient who had been in labour for some time by the performance of a classical section has gone, and the protagonists of such a dastardly step as craniotomy on the live child have no excuse now; for the lower segment section operation is safer than craniotomy for the mother in most potentially septic cases, and will nearly always end in the survival of the child. I believe I was the first to introduce drainage as part of the technique of this operation in septic cases; this drainage is best carried out by a large tube in Douglas's pouch, brought through either the lower end of the wound or a stab wound in the flank. The greatest care must be taken in walling off the intestines, in changing the gloves after the uterus has been sewn up, and in following other points in technique. In my opinion there is no excuse whatever for performing a classical section in this type of case, nor is Portes's operation indicated.

With regard to statistics of the lower segment section, there were 122 cases during my Mastership of the Rotunda. Among these there were four dead mothers and three dead babies. The indications were numerous. Some were for potentially infected women, others were for disproportion, fibroids, etc. I do not intend to give an account of the 118 successful cases, but I shall tell of the four failures.

The earliest of these four cases was complicated by fibroids, and occurred in my first year. A mistake was made in technique whereby the whole advantage of the lower segment operation was lost by the removal of fibroids from the back of the uterus. This should never be done. In an infected case the baby should be removed through the lower segment, and the fibroids be left for a future occasion. The two deaths in 1929–30 and 1931–2 happened in cases which were very septic on admission; these patients would probably have died despite any treatment. The babies were alive. The death in 1930–1 was due to sepsis, which was caused by an infective glove powder. I have already reported this occurrence, and, as stated in my reports, I have advised steeping the gloved hands in a spirituous solution of biniodide of mercury before operating. In 1927–8, 1928–9, and 1932–3 there were no deaths following this operation.

Uterine Inertia

Inertia is the bane of the general practitioner and the specialist. I have, for the sake of clearness, divided inertia into primary and secondary, with subdivisions of early and late. By early I mean in the first twenty-four hours, and by late after the first twenty-four hours. It is essential that this point should be emphasized, for the longer inertia lasts the more danger there is for mother and child: this subject is extensively dealt with in Tweedy's *Practical Obstetrics*, which for some time has been under my jurisdiction. Textbooks even confound the terms "primary" and "secondary." The simplest definition is that primary inertia is due to weakness in the muscle from some internal cause—that is, some undiscoverable cause; while secondary inertia has some definite cause, such as mechanical obstruction from disproportion of some kind. The cause of the onset of labour is not known, and until this is discovered the worry of inertia will still exist. I do not intend to dwell much longer on this all-important subject. It is raised because of the title of my paper; for doctors kill live babies more often when inertia is present than in any other condition. The baby is killed by too early or too late intervention. The doctor who thinks he can dilate a half-opened cervix and extract a live baby who will remain alive and healthy will not often get away with it. The doctor who is not able to recognize when to intervene so that the baby can be saved should acquire more experience. In other words, when inertia is encountered the variety must be determined: if there is no obstruction the condition is primary. Psychological treatment, plenty of rest by means of morphine, scopolamine, etc., long hot vaginal douches, absence of intervention, and careful watching for increase of temperature, pulse, and variation of the foetal heart rate must be carried out. The vexed question must be asked, When should there be intervention? When the labour has lasted from two to five or six days, when the temperature especially and the pulse steadily rise, when the foetus shows signs of definite danger, then the lower

segment section with drainage must be considered. Unless the cervix is three-quarters dilated and the head is well through the pelvis, vaginal delivery should not be done; even when carried out in this type of case the cervix will be torn.

Caesarean Section

From what I have said about Caesarean section it might be thought I was a keen believer in the operation. On the contrary, I believe it has done more harm than good. There are many inexperienced practitioners—and among these I include gynaecologists and surgeons who dabble in obstetrics—who know only one way out of a difficult case of midwifery, and that is section. The classical operation is unfortunately a simple one to perform, it allows the consulting specialist to get back to his work in a hurry, it is usually well paid, and if all goes well the patient and her relations are delighted! But a study of large statistical records will show that the death rate from Caesarean section is much higher than that obtained from vaginal delivery. In other words, the man or woman who advises Caesarean section should have a sound knowledge of the mechanism of labour, especially in regard to the action of the uterus. With this knowledge he will often find that a large dose of morphine combined with a thorough rest will to a large extent lower the incidence of the Caesarean operation.

The Use of Drugs

One important point I want to raise now is the use of oxytocic drugs. I have seen more harm than good result from the use of pituitary extract, but in the absence of disproportion, and when the obstetrician has got the necessary knowledge, he may give two to three units of pituitary extract every hour until ten or twelve units have been given, or until the patient is in labour. I would like to state that my teaching in the Rotunda was not to give the pituitary extract until after the placenta was delivered, and this is the safest advice. But, bearing this advice in mind, the experienced general practitioner may have exceptional instances in which he may prescribe as advised, but never in large doses. I have seen seven cases of ruptured uterus admitted to hospital following the injection of large doses of pituitary extract given under wrong conditions.

Even the use of quinine must be mentioned: this drug is not without a modicum of danger, and a foetal heart audible before has been found inaudible after 10 grains of quinine. Such cases are few and far between, but the danger must be mentioned.

The foetal mortality in connexion with placenta praevia is so great that a warning must be uttered. When the child is really viable and there are no contraindications Caesarean section should be done if a live child is not to be destroyed.

If monsters are diagnosed (and this can often be done by means of radiology), should they be destroyed? Luckily, most monsters are not capable of living, and each case must be dealt with on its merits. The ventricle in hydrocephalus is often tapped to allow delivery, and the baby is usually born dead. Further details in the management of these conditions will be found in textbooks.

I hope the title of my paper has not been misleading, for I have used it as a vehicle to discuss some knotty problems, but if I have brought home the fact that the foetus should practically never be destroyed my object has been fulfilled.

A BULLOUS ERUPTION DUE TO SULPHANILAMIDE

BY

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The following is a case report of a bullous eruption occurring after the administration of sulphanilamide.

Case Report

A man aged 49 attended the Pontypridd Venereal Diseases Clinic for the first time on February 8, 1939, with a urethral discharge that began on January 18, following exposure to infection on the 15th. He had treated himself with ol. santali from January 25 to February 2 without apparent effect. He was found to have anterior urethritis, with a whitish mucopurulent discharge; a smear was examined on one occasion but gonococci were not found. Treatment with sulphanilamide, 1 gramme four times daily, was started on February 8. On the 10th he complained of malaise and nausea, and the dosage was reduced to 1 gramme three times daily. The urethral discharge ceased on February 16 and has not reappeared. When seen on February 22 there was slight oedema of the hands and forearms, with a faint morbilliform rash on their extensor surfaces. Treatment was continued, and two days later the condition was unaltered. The patient then defaulted and was not seen again until March 21, when he gave the following further history. On March 1 he stopped work on account of severe swelling and blueness of the face, forearms, and hands, and photophobia and malaise. He took no more tablets after this. On the 3rd blisters appeared on the face, forearms, and hands. These gradually formed crusts, but on the 15th a fresh attack of swelling and blister formation occurred.

On March 21 he was seen to have a profuse bullous eruption on the face, neck, forearms, hands, and trunk. The bullae were round or oval in shape, with clear serous contents, mostly about 1 cm. in diameter; some, however, were 2.5 cm. The lower half of the face was more affected than the upper half, the forehead being nearly clear. The rash was severe on the back and sides of the neck, but did not extend into the scalp or below the collar level. On the forearms the dorsal surfaces were more affected. The backs of the hands were in the same state as the forearms, while the palms showed no bullae but desquamated in large flakes. The rash on the trunk was limited to about a dozen papulo-bullous elements scattered over the lumbar and gluteal regions. The bullae tended to rupture spontaneously and reveal eroded or ulcerated surfaces, which healed quickly, leaving pitted scars. There was no suppuration, and by April 6 only scarring remained. The patient refused admission to hospital for investigation. He works as a gardener in the open air with his sleeves rolled up and wearing a cap. The parts on which the rash occurred were exactly those which are exposed to light, with the exception of the few lesions on the trunk.

Comments

Bullous eruptions due to sulphanilamide are rare, though vesicular rashes have often been seen. A case was reported by Hallam (1939) after the administration of M & B 693, in which the patient had previously received ultra-violet-light treatment, and the rash was more widespread. Tedder (1939) classifies rashes due to sulphanilamide and its congeners into three groups: (1) Eruptions due to sensitization. These are allergic reactions and can be reproduced by administration of a single small dose of the drug (Tedder, Case 1; Schonberg, 1937). (2) Eruptions due to a toxic effect of the drug. These disappear if the

dosage of the drug is reduced, smaller doses being tolerated (Tedder, Cases 2 and 3). (3) Eruptions due to a combined effect of suphanilamide and light. In the first two groups the rash is more or less generalized; in the third it occurs mainly or wholly on surfaces exposed to light. Our case falls into the last group, since the rash was almost entirely limited to exposed parts and was quite sharply demarcated at the collar and elbow. The patient had been working in the open, but the weather had been dull and changeable, with little direct sunshine. This is possibly a point of some importance.

It is not definitely known exactly what part is played by light in cases belonging to the third group. Schölzke (1938) recorded a series of cases in which the patients were given uleron and exposed to ultra-violet light. No change in light-sensitivity could be demonstrated. A similar series, also with negative results, was mentioned by Eidinow (1939), who used sulphanilamide instead of uleron. From this it is clear that an increase in sensitivity to light is at any rate not a constant sequel to sulphanilamide medication. On the other hand, Newman and Sharlit (1937) and Brunsting (Tedder, 1939) have been able to produce a spread of an already existing rash to unaffected parts by exposing them to ultra-violet light.

As Tedder points out, this may be due to a non-specific effect of the light, producing a slight degree of irritation which determines the site of the rash. This phenomenon is well known to occur in rashes of widely different types, in which irritation due to light seems to produce a locus minoris resistentiae. This might have happened in the case mentioned by Hallam, but in our case exposure to light was so trivial—and this on parts habitually exposed—that even the slightest degree of irritation cannot be presumed. We are therefore bound to assume that light-sensitivity was present. This may have arisen in two ways, as suggested by Newman and Sharlit (1939): either there is a direct light-sensitization caused by the drug, as is produced by fluorescent compounds such as eosin, or sensitization is indirectly due to the drug by the production of porphyrins. The first hypothesis is made unlikely by the experiments of Schölzke and of Eidinow, since if sulphanilamide had this effect it should be regularly observed. Light-sensitization by porphyrins remains and appears to fit the facts; the production of porphyrins is known to occur when sulphanilamide is given, and their quantity to vary considerably in different cases. Unfortunately in neither Hallam's nor our case were examinations made for these substances. Brunsting, however, observed two cases of this type of eruption in which urinary porphyrins were much above normal. It may be remarked that the presence of cyanosis due to porphyrinaemia does not always go hand in hand with light-sensitivity. This is probably due to the fact that different porphyrins have different sensitizing powers when present in the blood stream. The present evidence points, therefore, to porphyrinaemia as the cause of light-sensitization following sulphanilamide medication.

It is of further interest to note that in hydroa aestivale a bullous eruption following exposure to light is associated with haematoporphyrinaemia.

We are indebted to Dr. E. Colston Williams, medical officer of health for Glamorgan, for permission to publish this case.

REFERENCES

Eidinow, A. (1939). *British Medical Journal*, **1**, 692.
Hallam, R. (1939). Ibid., **1**, 559.
Newman, B. A., and Sharlit, H. (1937). *J. Amer. med. Ass.*, **109**, 1036.
—— —— (1939). *Arch. Derm. Syph.*, Chicago, **39**, 226.
Schölzke, K. H. (1938). *Derm. Wschr.*, **107**, 1460.
Schonberg, I. L. (1937). *J. Amer. med. Ass.*, **109**, 1035.
Tedder, J. W. (1939). *Arch. Derm. Syph.*, Chicago, **39**, 217.

OBSERVATIONS ON THE AGGLUTINATION TEST FOR WEIL'S DISEASE

BY

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Although in principle this test is essentially similar to a bacterial agglutination test, difficulties have been met with which would mask or invalidate the results in the hands of an inexperienced observer. In the first place, though all the strains of the organism which we have used have been isolated from patients in England whose sera have reacted strongly to the standard London human strain of *Leptospira icterohaemorrhagiae*, only certain of these strains are suitable for the agglutination test. To take a typical example, five human strains of *L. icterohaemorrhagiae* were subcultivated in Fletcher's broth until the growth in each of the cultures was sufficiently vigorous to be apparently suitable for the agglutination test. The cultures were then formolized to exactly 0.2 per cent. One serum was put up against these five cultures, using Schüffner's technique, in dilutions ranging from 1 in 10 to 1 in 30,000. The result of this was as follows: one strain showed no agglutination; one was positive up to a serum dilution of 1 in 100; one was positive up to 1 in 300; and two were positive up to 1 in 1,000. The technique employed in this case was twenty-four hours' interaction at room temperature. The results were read with a microscope, 2/3-inch objective and × 10 ocular with dark-ground illumination, no cover-slip being used. This serum consistently gave a titre of 1 in 3,000 with our standard formolized culture. By "standard" culture we do not mean that it has been standardized after the manner in which the Oxford bacterial cultures are standardized, but merely that for the last five years it has been known to give consistent and repeatable results.

We have some reason to believe that cultures which have been quite recently formolized are not agglutinated to so high a titre as those formolized for forty-eight hours or more. The question of formolization of the cultures has not presented any difficulty, and we have not met with the acid agglutination referred to by Professor Schüffner. We have always used analytical reagent formalin, and have not added more than 0.2 per cent.

From time to time a macroscopic agglutination technique has been advocated, and there is no doubt that when a suitable antigen can be obtained a florid serum will give a positive result after one hour's incubation. Pot (1936) advocates a macroscopic test, and claims that out of twenty-six known positive sera twenty-five gave a positive reaction with his method. In our experience the macroscopic method is not nearly so sensitive as the microscopical, and we are of opinion that certain sera of low titre, such as those met with shortly after the sixth day of disease, may be missed if the macroscopic test is employed. Using the microscopical procedure the titres obtained by Brown (1935) approximated very closely to those obtained by Professor Schüffner when a series of sera were examined by both observers.

Technique of the Test

When examining a serum it is necessary to put up a known positive serum in all dilutions at the same time. This will indicate any change in agglutinability of the

antigen. We have known formolized antigens which have been perfectly satisfactory for six months to have suddenly lost their agglutinability. Occasionally sera are met with which, when examined under the dark-ground microscope, give the appearance of a definitely positive reaction. On critical examination of the white aggregations standing out against a dark background, they are seen to be composed not of leptospira but of minute somewhat spherical particles. If they had been composed of leptospira the fibrillar composition of the aggregations would have been seen and the background would have shown absence of the organism. The inexperienced observer can easily make a mistake under these circumstances. If there is still any doubt about the matter a cover-slip should be applied and the preparation examined with a 1/12-inch objective and dark-field illumination. In two of the sera which have given this reaction false positive Wassermann reactions were obtained.

We are strongly of opinion that, until some method of standardizing cultures of leptospira is employed the serological diagnosis of Weil's disease should only be undertaken at laboratories where the idiosyncrasies of the antigens are well known.

We should like to thank our assistant, Mr. R. J. Reed, for his skill and care in looking after the cultures of leptospira during the last five years.

REFERENCES

Brown, H. C. (1935). *British Medical Journal*, **1**, 411.
Pot, A. W. (1936). *Lancet*, **1**, 1290.

Clinical Memoranda

Pneumococcal Peritonitis with Bilateral Pneumococcal Empyemata

Treatment with M & B 693: Recovery

The high mortality rate in cases of pneumococcal peritonitis is largely due to the early association of pneumococcal septicaemia, and it is felt that M & B 693 was of great value in the case here recorded. As Professor Fleming (1938a, 1938b) has pointed out, one cannot claim or hope to give such doses as would kill off the organisms in such a severe case; one can merely restrain growth, so that the natural defences of the body may succeed in overcoming the infection.

CASE REPORT

On November 10, 1938, a girl aged 10 was admitted to the General Infirmary at Leeds. Two days previously she first became ill with vomiting and diarrhoea. She complained of abdominal pain around the umbilicus. On examination the child was flushed, the tongue was furred and dry, and her abdomen was distended and generally tender. Temperature 100.5°, pulse 132, respirations 32. Progress and treatment were as follows.

November 10.—Laparotomy performed by Mr. Michael Oldfield. On opening the peritoneum greenish-yellow fluid was evacuated. Swab taken for bacteriological examination. Appendix inspected; found to be normal and left. Abdomen closed with pelvic drainage. A diagnosis of pneumococcal peritonitis was made, and the same day a course of M & B therapy was started. (Dosage: first dose 1 gramme, then 1/2 gramme four-hourly for three days, then six-hourly for four days. Stopped.) Felton's serum, three doses of 10,000 units at three-hour intervals; subsequently 10,000 units daily for eight days.

November 12.—Report on swab taken from abdomen at operation showed profuse growth of pneumococci. T. 98.2°; P. 138; R. 36.

November 17.—Radiograph of chest showed an opacity at right base suggesting effusion. T. 98.4°; P. 128; R. 33.

November 19.—Blood culture positive for pneumococci Type I. T. 100°; P. 156; R. 41.

November 20.—M & B 693, one tablet six-hourly. T. normal; P. 140; R. 36.

November 21.—Signs of pneumonic condition of right middle lobe. T. normal; P. 160; R. 36. Blood transfusion: 3/4 pint by vacoliter drip method.

November 22.—Bilateral aspiration of chest—thick green pus obtained. Mr. Allison operated on both empyemata, using rubber catheters and closed drainage. Abdominal wound still draining. Report on pus from chest: pneumococci Type I. T. normal; P. 134; R. 34.

November 24.—Patient still very ill. Treated in oxygen tent for next three days. Improvement. Catheters draining well. T. 100.2°; P. 144; R. 30.

November 26.—Decided to increase dose of M & B 693 considerably. (Dosage: first dose 2 grammes, then 1 gramme four-hourly for three doses, 1 gramme six-hourly for four doses, 1/2 gramme four-hourly for three days. Stopped.) T. 101°; P. 150; R. 36. With this treatment the patient improved. Occasional vomiting, some cyanosis and restlessness.

December 1.—Radiograph showed catheters *in situ*; no fluid, but empyema cavities extending down to level of twelfth rib behind (lipiodol). T. normal; P. 140; R. 40.

December 3.—Blood culture report: no growth after thirty-six hours. T. 100°; P. 144; R. 40. Patient continues to improve; takes nourishment well and is gaining in strength.

December 10.—Blood culture report: sterile. T. 100.5°; P. 136; R. 42. 1/2 gramme M & B 693 thrice daily for one week.

December 19.—Bilateral rib resection carried out by Mr. Allison to drain cavities below level of insertion of catheters. Improvement soon noticeable, and patient had no further pain; drainage ceased after a few days. T. normal; P. 126; R. 36.

December 31.—Radiograph with lipiodol showed no cavities. Drainage tube removed. Wounds granulating from base. T. normal; P. 132; R. 34.

January 3.—Patient's condition very satisfactory; she feels well, eats well, and has no pain. Sent to convalescent home. T. normal; P. 120; R. 28.

February 5.—All wounds dry. Chest expansion good. No abdominal pain or tenderness.

SUMMARY

A case of pneumococcal peritonitis with recovery is described. The points I wish to stress are:

1. The advisability of giving serum together with M & B 693 to enhance its effect.

2. The fact that fairly large doses of M & B 693 were given without any serious toxic effects.

3. When the child's condition was most critical on November 26 the dosage of M & B 693 was considerably increased. From this time her condition gradually improved, and it was thought that M & B 693 was the main factor in this crisis which turned the scales in her favour.

I wish to thank Mr. L. R. Braithwaite for permission to publish this case, and Mr. Michael Oldfield and Mr. P. R. Allison for their help and advice in compiling this report.

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REFERENCES

Fleming, Alexander (1938a). *Lancet*, **2**, 74.
—— (1938b). Ibid., **2**, 564.

Reviews

ADLER AND HIS WORK

Alfred Adler. The Man and his Work: Triumph over the Inferiority Complex. By Hertha Orgler. (Pp. 236; frontispiece. 8s. 6d. net.) London: C. W. Daniel. 1939.

Mrs. Orgler is one of Adler's most devoted disciples, and in this book on the man and his work she has given an interesting account of both in a form suitable for a lay audience. To those who only knew Adler in his later life some of her facts will appear surprising. He seemed so equable, so quietly determined, so indifferent to praise or adverse criticism that on the surface only one maladjustment appeared—his tendency to distrust the loyalty of his followers. Yet we learn that he had been afraid of death and determined to conquer this fear by becoming a doctor; he was jealous of his mother's attention to his brother and was sensitive to slights and avid of affection; he suffered from rickets, and consequently thought himself to be ugly and a weakling; he wanted to be an important and appreciated figure in the world, yet felt he must guard himself against an overwhelming will to power. His early recognition of his own drawbacks and his determination to overcome them lay at the root of his whole philosophy. It is the great measure of success which rewarded these endeavours which makes him such an inspiring example to all those who feel overwhelmed by their own difficulties. Never forgetful of his early struggles he could enter sympathetically and helpfully into their troubles. He was determined to express himself simply and clearly enough to be understood by the ordinary man or woman, for he was literally appalled by the amount of suffering which is needless and which is remediable by adaptation to life.

From such a beginning and with such an outlook it is only natural that the keynote of his philosophy was that all human progress can be referred to the fact that man strives to overcome his inferiority. Normally this inferiority feeling should help him to solve his problems successfully, but if he evades them and falls back on a non-cooperative, asocial retreat he develops an inferiority *complex*. Adler regretted that this phrase of his was so frequently misapplied to the normal and necessary *feeling* of inferiority.

His insistence on the vital necessity for co-operation with others has led to the suggestion that "social" rather than "individual" would have better described his psychology. But as a protest against the methods of reductive analysis he wished to emphasize that man reacts to his environment as an individual whole. Freud was concerned with origins, Adler with the direction in which the individual life was tending. This distinction comes out clearly in their respective attitude towards dreams. Whereas Freud saw in them a series of fixed symbols, valid for everyone, Adler maintained that as the dream is a creation of the life style it cannot be detached, but must always be considered in connexion with the individual dreamer and the situation with which he was confronted at the time.

The early formation of the style of life and the significance of the earliest memory we retain as interpreting our predominant attitude to life; the different environment which its position in the family imposes on each child; the importance of the goal to which the individual is consciously or unconsciously striving, and the necessity for social co-operation—these were the main tenets of his philosophy, and each of them is clearly expounded and illustrated in this book. Mrs. Orgler sums up the man and his work thus: "He saw with the eyes of the other person, heard with the ears of the other, and felt with the heart of the other." Therein lay his strength.

Dr. O. H. Woodcock, one of the leading exponents of Adler's philosophy in this country, contributes an admirably concise and illuminating introduction to the book.

W. L.-B.

PERNICIOUS ANAEMIA

Anemia in Practice. Pernicious Anemia. By William P. Murphy, A.B., M.D. (Pp. 344; 41 figures; 5 coloured plates; 18 tables. 22s. 6d. net.) London: W. B. Saunders. 1939.

The name of Murphy, with that of his colleague Minot, is inalienably associated with the discovery of the liver treatment of pernicious anaemia. Of the 300-odd pages of this book all but the first sixty are devoted to pernicious anaemia, and it should really be regarded as a monograph on that disease and not as a treatise on anaemia in general. The history of the development of treatment by liver, and of the doubts and fears and criticisms which beset its originators in the early days, is well told. The first really severe case in which it was tried was admitted to the ward in a semi-comatose irrational state, and with an erythrocyte level of 750,000 per cubic millimetre.

"For eight days liver, and scarcely any other nourishment, was forced into the patient, somewhat against his will, during which time no evidence of improvement was noted. Having won the decision in favour of liver therapy as opposed to transfusion, and feeling keenly my responsibility, I left the patient's bedside late on the night of the eighth day with considerable doubt as to whether or not he would be alive in the morning, since his condition seemed to be definitely worse than it had been at any time. After a sleepless night I returned to the ward early on the following morning before breakfast had been served, and to my great relief the patient was sitting up in bed clamouring for breakfast. Diarrhoea, which had started on the second day following the institution of liver therapy, had subsided. The reticulocyte count had reached a peak level of 15.5 per cent. and the erythrocyte count was up to 1,660,000. His further recovery was uneventful."

Of 484 patients who have been observed during the past thirteen years 378 are living, and in few of those who have died was pernicious anaemia the cause of death. Less than 10 per cent. of the patients exhibited marked locomotor difficulty. Dr. Murphy attributes the satisfactory results to intensive therapy, usually by the parenteral route, of which he has been one of the pioneers. He has interesting comments on the diseases associated with pernicious anaemia, and his discovery of diaphragmatic hernia in five of his cases will be of great interest to haematologists, as hitherto it has been associated only with a hypochromic type of anaemia.

PHYSIOLOGY OF THE LUNG

Le Poumon: Structures et Mécanismes à l'Etat Normal et Pathologique. By A. Policard. (Pp. 314; 31 figures. 55 fr.) Paris: Masson et Cie. 1938.

In discussing the physiology of the lung two points of view can be presented. The gaseous exchange in the alveolar wall may be considered as the true function of the lung; but it is also important to know the mechanisms by which that function is carried out, and this leads, therefore, to the study of the histophysiology. In his book Professor Policard has attempted to describe our knowledge of the life of pulmonary tissues, their functions in health, and their fundamental reactions in disease. This knowledge is of the highest significance to the

clinician, but unfortunately at present many lacunae still exist in our understanding of pulmonary histophysiology and histopathology, due in no small measure to experimental difficulties caused by the hidden situation of the organ; as Professor Policard points out, a lung outside the thorax is not a normal lung.

The book is divided into two parts, in which are discussed the alveolar parenchyma and the bronchovascular network and fibrous skeleton respectively. Naturally the discussion of the alveolar parenchyma occupies most of the volume. Each aspect of the subject is presented clearly and in detail, and the pen-and-ink illustrations are well drawn. The literature is succinctly summarized and modern views are fairly expressed. A short chapter on comparative histology and a much longer one on the development of the lung in man are included. The physician will be particularly interested in the two sections with which the first part is concluded—the elementary mechanisms of inflammations and fibroses in the alveolar parenchyma, and the conditions of alveolar collapse. In the second part Professor Policard, after describing the bronchovascular and fibrous framework in general, discusses in separate chapters the pulmonary vessels, the bronchi, and the lymphatics.

This book maintains the high standard of Professor Policard's publications and provides an authoritative and unbiased summary of a subject in which the medical practitioner is directly interested. It should also help in indicating the lines along which further research is needed.

MEDICAL TOPICS FOR THE LAYMAN

Medicine in Modern Society. By David Riesman. (Pp. 226. 11s. 6d. net.) Princeton, New Jersey: Princeton University Press; London: Oxford University Press. 1938.

In the preface to this book Dr. David Riesman states that it grew out of his belief that the history of medicine is in reality an epitome of the history of civilization and should form part of every man's culture. Although this statement is rather too comprehensive in character, there is a good deal to be said in favour of the thesis that a knowledge of medical history and of medical principle is fully as important to the education of the individual as is a similar knowledge of art or music. In any case a book which sets before the intelligent layman the main facts as to the present position and aims of medicine and shows how these have grown out of its history is to be welcomed.

Dr. Riesman is now consulting physician to a number of Philadelphia hospitals and professor of the history of medicine in the University of Pennsylvania. His book has been developed from a series of lectures, known as the Vanuxem Lectures, which he delivered at Princeton University. It suffers from some of the defects which are predisposed to by such an origin. Though there is some semblance of consecutiveness in the earlier chapters, which have to do with the development of medicine from early times to the twentieth century, the volume as a whole consists of fifteen chapters, most of which are somewhat superficial in character and largely disconnected except in so far as each has some bearing upon the theme indicated by the title of the volume. Their content may be indicated by some of their headings—"Cancer," "Medical Education," "Everyman and his Neurosis," "Superstitions and Cults," "The Family Doctor," "Leisure and Health." None of them contains anything very new or valuable for the medical practitioner; but probably they are not intended for him. Perhaps the most thoughtful of the essays are those on "Medical Ethics" and on "The Social Outlook in Medicine." The latter contains a moderate and well-balanced statement of what should be regarded as good and adequate medical care, and how, or by what system, this can best be provided for the general public of the United States of America. There are several statements in the volume which may surprise or even mislead the English reader, and it is certainly not true of this country that "to-day the administration of ether, nitrous oxide gas, or other inhalants is made nearly foolproof, and in modern hospitals is usually in the hands of carefully trained nurses."

ADVANCED BIOCHEMICAL TECHNIQUE

Laboratory Methods of Biochemistry. By A. Bertho and W. Grassmann. Translated by W. McCartney, Ph.D., F.I.C. (Pp. 281; 33 figures; 1 folding diagram. 18s. net.) London: Macmillan and Co. 1938.

This book by Bertho and Grassmann is designed to fulfil that same purpose for biochemistry as the world-famous "Gattermann" has long done for organic chemistry. It is strongly reminiscent in general style of the latter work, the kinship between the two being the more close in that Dr. McCartney, the translator of the twenty-fourth German edition of "Gattermann," has also undertaken the same task in respect of the present volume. The book is divided into four main sections, the first dealing with general technique, the others appearing under the following headings: substrates, enzyme hydrolysis, and respiration and fermentation. From such titles it will be discerned that the authors approach biochemical investigation as a development of pure enzyme chemistry.

While some elementary ground is covered, in the main the book meets the needs of advanced and research students. Its methods are essentially those of the research laboratory, and are otherwise not readily accessible except by diligent search of original literature. Only sound, reliable, and modern technique is described, and a noteworthy inclusion is the subject of chromatographic analysis, which has proved of such outstanding service in recent biochemical advances. It would have been, perhaps, more instructive to have provided fuller directions upon typical cases of its application. Indeed, we suggest that the scope of the general section on technique might with advantage be considerably extended. There is no doubt that the book will achieve something like the same degree of popularity as "Gattermann," and both should be regarded as indispensable equipment by all practical biochemists.

THE CORPUS LUTEUM

Le Corps Jaune. Etude Biologique, Clinique et Thérapeutique. By H. Simonnet and M. Robey. Preface by L. Portes. (Pp. 172; 19 figures, 5 coloured plates. 50 fr.) Paris: Masson et Cie. 1939.

This is a most interesting and excellently written monograph on the corpus luteum. The authors modestly refer to it as "a biological, clinical, and therapeutical study," but it embraces an exhaustive investigation into every aspect of the subject. The introduction contains a concise historical survey, which commences with the first description of a corpus luteum in the sixteenth century and ends with a reference to the publication in 1934 of the synthesis of progesterone.

The work is presented in two sections, the first dealing with the experimental study of the problem and the second with its clinical application. A detailed account is given of the biochemistry of lutein tissue with its lipoids, pigments, vitamins, and hormones, and this is

followed by a discussion on the chemistry of progesterone, pregnandiol, and allied substances. A long and careful description of the pharmacological and physiological action of the corpus luteum is neatly summarized in five very excellent and graphic coloured plates.

The book ends with a summary of the indications for corpus luteum hormone therapy. Special mention must be made of the valuable list of references to relevant world literature which is given at the end of every chapter. This is a stimulating and well-presented contribution to the subject of endocrinology.

Notes on Books

For the second edition of their valuable little book on *The Infant: A Handbook of Management*, Drs. W. J. PEARSON and A. G. WATKINS have carried out extensive revision, and the feeding tables are more complete than before. A new chapter on the care of the premature baby is a good summary of an important subject, containing in brief form most of the modern advances in this field. Mention might have been made here of the danger of too low a humidity in the warmer atmospheres used. The section on recipes begins rather surprisingly with a useful short description of preserving breast milk. The modest price of this book—2s. 6d.—should secure a wide sale. The publishers are H. K. Lewis and Co.

In *Practical Child Psychotherapy* (London: John Bale, 10s. 6d.) Dr. CURT BOENHEIM seeks to deal with the functional visceral disorders of childhood which prove so difficult both to the paediatrician and to those engaged in child guidance. The book is based on the experience gained in practice during the last ten years, chiefly in Berlin and lately at the Tavistock Clinic, and although no doubt both material and method are clear in the mind of the author he has not succeeded in making his exposition very clear to the English reader. This is chiefly due to the fact that it has been written by someone obviously thinking in a foreign language; and although for a native of another country to write a book in English at all is no mean feat, it does not make easy and pleasant reading. Moreover, while it is commendable to try to make a book short it is possible that this has been overdone, for many of the sections are scrappy, and it would seem that the reader might have learnt a great deal more if the author had gone into further detail and been at pains to expand his thesis rather more fully. Still so little has been written about these functional physical conditions that this book is useful, and will serve as a convenient work of reference for those dealing with such conditions. There is an extensive bibliography, but the references are almost all to German works.

The American Roentgen Ray Society was founded in 1900, and from 1903 an official journal has been published. The title of the first periodical was the *Transactions of the American Roentgen Ray Society*, which has changed at various dates to *American Quarterly of Roentgenology*, *American Journal of Roentgenology*, and the current periodical is familiar to all as the *American Journal of Roentgenology and Radium Therapy*. The society has now issued a Consolidated Index to all of these publications in a volume of 451 pages. The first 154 pages are listed under Authors (22,500 entries) and the remainder under Subjects (160,000 entries). This index includes, in addition to original articles, editorials, biographical and historical sketches, and (a very important feature) all abstracts from international literature which have appeared in the publications of the society from 1903 to 1937. The volume should prove invaluable as a means of quick reference to all who are interested in *x* rays or radium. The stupendous task of compiling the index was carried out by Dr. George H. Smith, and many will have cause to thank him. This volume covers the period during which *x* rays and radium have become ancillaries of medicine and surgery, and will save hours of research. It is published at Springfield, Illinois, by Charles C. Thomas (12.50 dollars in the U.S.A., Latin America, and Canada; 13.00 in other countries).

Sexual delinquency attracts more attention in the United States than in this country, and great efforts are being made to deal with it scientifically. *The Sex Criminal*, by BERTRAM POLLENS (London: Putnam, 7s. 6d.), is a summary meant for the general reader of the theory and practice which have been evolved by psychologists and penologists in America. It is intelligent and readable, and may contain one or two useful hints for those who study delinquency scientifically in this country. The outstanding feature of the book is perhaps the amazing picture it gives of prudery in the ordinary American mind and unreasonable severity in American legislation. These must be by far the most important causal factors in the severe social problem which sexual delinquency presents in the U.S.A.

A concise *Medical Vocabulary*, with German, French, Italian, and Spanish equivalents, by JOSEPH S. F. MARIE, has recently been published by P. Blakiston's Son and Company, Philadelphia. It is a compact volume of 926 pages, which will render great service to the medical man, who will find systematically presented in alphabetical order many of the most important English terms with their equivalents in the four languages. In addition, there is an appendix with remarks on pronunciation and a list of the commoner medical phrases. The price of this book is 10 dollars.

Travaux Pratiques et Démonstrations de Pharmacodynamie, by Professor L. DAUTREBANDE, E. PHILIPPOT, F. NOGARÈDE, and R. CHARLIER (Paris: Masson et Cie, 35 fr.), is a practical class textbook of the University of Liége. The volume is well illustrated and gives full technical details of a wide variety of experiments. One novel feature is a description of a series of physiological and chemical tests for the better-known poisonous gases.

Preparations and Appliances

A NEW SCLEROSING AGENT

"Ethamolin" (Glaxo Laboratories Ltd.) is a new sclerosing agent for the injection treatment of varicose veins. It is an aqueous solution of ethanolamine oleate (5 per cent.) with 2 per cent. of benzyl alcohol as a preservative. Numerous substances (sodium morrhuate, quinine, urethane, etc.) have been employed extensively for the treatment of varicose veins, but the makers claim that ethamolin possesses definite advantages over the sclerosing agents previously in use.

LACTOGENIC PRINCIPLES FROM ANTERIOR PITUITARY

"Physolactin" (Glaxo Laboratories Ltd.) is an aqueous solution of active lactogenic principles obtained from the anterior pituitary gland. The makers have succeeded in concentrating the hormone and in removing other undesirable active principles. The preparation is biologically standardized and each batch is subjected to clinical tests before release.

The anterior pituitary gland contains an embarrassingly large number of active principles, and Messrs. Glaxo are to be congratulated on their success in the difficult task of producing the lactogenic principles in a form suitable for clinical use. Laboratory experiments have proved that the lactogenic principles are very powerful stimulants of milk secretion, and the makers state that clinical trials have given very satisfactory results in cases of deficient lactation.

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THE REPORT ON ABORTION

The report of the Committee on Abortion, which is issued to the Press this week, shows clear internal evidence of the difficult nature of the task laid before its members when the Home Secretary and Minister of Health requested them to inquire "into the prevalence of abortion and the present law relating thereto, and to consider what steps could be taken by more effective enforcement of the law or otherwise to secure the reduction of maternal mortality and morbidity arising from this cause." Besides the main report there is a minority report which controverts most of its conclusions, and three reservations upon matters of importance in regard to which the signatories find themselves in disagreement with the majority of their colleagues. The minority report has only one signatory, but one of the reservations is signed by six out of the fifteen members of the committee. It is, however, clear that upon one of the main issues before it the committee was in a position to make a unanimous recommendation. This recommendation is that the law should be so amended as to make it clear that a medical practitioner who bona fide induces abortion to safeguard or restore the health of his patient commits no offence and does not render himself liable to prosecution by the Crown. In other words, the committee recommends that the view of the law expressed in July last by Mr. Justice Macnaghten in Rex *v.* Bourne should be embodied in the statute.

This is without doubt the most important recommendation in the report, and while we believe that it will be widely welcomed by both medical and lay opinion, there is a considerable body of contrary opinion which is likely to be vocal both in and out of Parliament and which cannot be ignored. Opponents of the recommendation will note that the chief reason advanced is the necessity for "clarifying" the law, which the committee thinks is left in some obscurity by the Macnaghten decision. Clarification, it is stated, is called for mainly in the interest of doctors who may without this help be deterred from inducing abortion for sound medical reasons by uncertainty as to their freedom from the risk of prosecution. The desirability of clarifying the law will not carry conviction to those who fear the consequences of a wide extension of the medical indications for therapeutic abortion. It is, however, implicit in the text of the report (Chapter IX) that the committee thinks it in the public interest that induction of abortion should be allowed for the relief of conditions which carry a threat to health but not directly to life. A full and reasoned statement of the considerations, based upon the interests of the woman rather than those of the doctor, which led the committee to this decision would have strengthened the report and might also have helped to disarm opposition. Nevertheless it is a fact of great significance that a committee in which so many shades of opinion were represented should be unanimous in advocating greater freedom for doctors than they at present possess in inducing abortion for therapeutic reasons.

Having taken a courageous decision the report proceeds to show a certain degree of apprehension that abuses may arise out of the "clarification" of the law which has been advised. A certain number (rightly believed to be very small) of medical practitioners are known to be willing, when offered a fee they regard as attractive enough, to induce abortion in the absence of any medical disability which could conceivably require it. It has been exceedingly difficult, in the present state of the law, to catch these medical abortionists, and the committee evidently fears that when the change in the law it recommends has been effected unscrupulous practitioners will be provided with a line of defence which it would be very difficult for the prosecution to surmount; and, further, it is reasonably certain that there would be a great increase in the number of abortions carried out ostensibly upon therapeutic indications. The committee accordingly thinks that a check should be imposed upon the practice of doctors in the following manner. It is recalled that an honourable custom exists in the medical profession that consultation should voluntarily take place between the doctor in charge and a medical colleague before therapeutic abortion is undertaken; without concurrence the operation would not be performed. This custom has received the sanction of the Royal College of Physicians and of the British Medical Association and has been noted with approval in the High Courts of Justice. It safeguards the interests of the patient and should also assure the good faith of the doctor. The medical abortionist does not observe this custom; if it were practicable to oblige him to do so he would find it very difficult to carry on his illicit trade. Therefore the report

proposes that a statutory obligation should be laid upon all medical practitioners, whether in private or in hospital practice, to hold a consultation in every case previous to operation, and to notify (in a manner to be laid down in departmental regulations) to the medical officer of health of the appropriate local authority the fact that the consultation has taken place between the two doctors who jointly make the notification. In cases of emergency the obligation would not apply, but the practitioner must be prepared to show reasonable grounds for the omission, if required to do so. The notification forms would be "confidential except that the police would have access to them." Failure to notify a case would be an offence dealt with by summary jurisdiction, and would not of itself be evidence of illegality in respect of the operation. It is of course conceivable that two evil-minded practitioners might conspire to defeat the ends of justice, but on the other hand must be set the well-known unwillingness of those who act illegally to make any written statement which could be used against them.

The pros and cons of this procedure are fully and fairly discussed in the report. There will be a general desire that the profession should, so far as possible, be cleansed from the stain of dishonour which the medical abortionist leaves upon it, but it is clear that the committee did not accept the plan without dispute, for one of the reservations, signed by two members of great administrative experience, expresses a firmly worded incredulity as to its efficacy in eliminating the "medical crook." On the other hand, it may be pointed out that if compulsory consultation should prove to be of only limited usefulness as a deterrent, whatever degree of success is achieved will be a step in the direction towards which, it is certain, the medical profession as a whole would wish to move. And, further, it is no departure from medical tradition and practice except in one particular—namely, that the police should have access to the notification forms in the custody of the medical officer of health. The latter provision will surely meet with opposition within the ranks of the profession, and not least from medical members of the public health service. The considerations prompting such opposition are stated clearly in the reservation referred to above.

It will be apparent that the two recommendations just considered can make only an indirect contribution, if any, to the reduction of maternal mortality and morbidity arising from abortion. The committee no doubt found it difficult to discover means of making a direct attack upon this problem. Indeed, as the report points out, an initial difficulty presented itself of a truly formidable character, inasmuch as there is no official information available about the total number of cases of abortion or about the risks to life and health which attend them. An attempt has been made to arrive at an estimate of the total number of cases of all varieties of abortion; and the figure of 110,000 to 150,000 per annum, or about 300 cases a day, advanced with apologies, is evidently regarded by its promoters as only a wavering approximation to the truth. Through no fault of its own the Committee on Abortion cannot define either the extent or the characters of the problem with which it had to deal with anything like precision. The data required do not exist, and it is difficult to see how they could be obtained. From this it follows that while the total number of deaths registered as due to abortion may be accepted as substantially accurate, the death rate or case mortality is unknown; this is true not only of abortion as a whole but also of the important class of criminal abortions. From such evidence as was available to it the committee reached the conclusions that criminal abortion has not become more frequent in recent years, and that it is attended by a high degree of risk—to life primarily, but also to health. Discussion of other features of the report must be deferred to a later issue.

WORKMEN'S COMPENSATION

Workmen's compensation is a matter that concerns all doctors as citizens and many doctors in their professional capacity. The measure of protection which the common law gave to workpeople against the hazards of employment proved unequal to the stress thrown on them by the industrial revolution. Its value was much restricted by the anomalous doctrine of "common employment," under which a workman may not recover at common law damages from an employer for injuries caused by the act of a fellow workman. This doctrine was restricted by the Employers' Liability Act, 1880, and overridden by the first Workmen's Compensation Act, which was introduced and passed by a Conservative Government in 1897. An amending Act of 1906 extended its principles to almost all industries and occupations. The Act of 1923, consolidated in 1925, as Sir Arnold Wilson points out in the preface to the first volume of a comprehensive monograph,[1] was not an agreed settlement but a makeshift compromise. How makeshift it is may be gathered by a glance through the pages of Willis or one of the other standard textbooks. This legislation, one of the advantages

[1] *Workmen's Compensation.* Volume I: Social and Political Development. By Sir Arnold Wilson, M.P., and Professor Hermann Levy. London: Oxford University Press. (10s.)

of which as set forth by the promoters of the original Bill was that it would dispense with the services of lawyers, has been more remunerative to the legal profession than any other single set of enactments—except possibly the Rent Acts. To-day a Royal Commission is considering the whole chaotic question from the beginning.

The monograph by Sir Arnold Wilson and Professor Hermann Levy is to some extent a minority report based upon the data which were before the Holman Gregory Committee of 1919. The authors consider that no inquiry into the subject can reach a satisfactory outcome unless it is based upon an impartial and dispassionate survey of the British system in the light of history and alternative systems. They condemn the present system—as, indeed, nearly everyone does who knows anything about it—as full of grave defects, extravagant in money and health, and a source of constant friction between employers and employed and between doctors and their patients. They believe that the appointment of a Workmen's Compensation Commissioner is an indispensable adjunct to any scheme of reform, and that if the present excessive costs of administration are reduced much can be done for workmen without fresh expense to employers. They therefore begin with a historical survey of industrial conditions, both here and abroad, through the rapid extension of the industrial system. They discuss at length the Employers' Liability Act and show the steps by which the idea of workmen's compensation was made concrete. They analyse the defects of the first Workmen's Compensation Act and the changes made in 1906, and, discussing modern development in the final section, they devote five chapters to an analysis of the Holman Gregory report and another to Mr. J. H. Thomas's abortive Bill of 1923. In the last chapter, on legislative measures since the consolidation Act, they summarize the changes made by Mr. Godfrey Nicholson's Act of 1934, which protects coal-miners against the bankruptcy of colliery owners, and discuss the statutory schemes in force for dealing with industrial diseases. These schemes, they note, contain two outstanding innovations: a general compensation fund and a medical board. Their survey is well written and well arranged, and can be easily assimilated by the non-medical or non-legal reader. References to statutes, cases, Parliamentary debates, and literature are complete, and the bibliography and index appear adequate. Appendices contain some contracting-out schemes and a critical summary of workmen's compensation statistics. It should be of value to every barrister or solicitor engaged in insurance work, and to every medical referee and general practitioner in an industrial area.

PURPURA HAEMORRHAGICA

Progress in the investigation of anaemia and leukaemia appears for the present to have halted, and the haemorrhagic diseases have taken their place in the field of research. We have already referred to vitamin K and its apparent beneficial effect on the haemorrhagic tendency of jaundice.[1] Clinical experiments on these lines continue, though most workers will agree with Quick[2] that there is still a great deal to be learnt about prothrombin and vitamin K. The opportunity to study 153 cases of thrombocytopenic purpura in a ten-year period comes to few people, and this, together with his reputation as a haematologist, lends especial authority to Rosenthal's paper on the subject.[3] The criteria for his series of cases were absence of anaemia, unless considerable bleeding had taken place; normal leucocytic picture; and great diminution in the number of platelets. More than a quarter of the cases occurred in the first decade of life. A certain number were symptomatic of infection, drug idiosyncrasy, or malignant disease, but food allergy seemed to play no part. Cases of idiopathic disease, both acute and chronic, comprised the majority of the series. The acute cases fell into three groups. Most common, especially in childhood, were those in which recovery was spontaneous. In a second group the acute attack merely marked the onset of a chronic form of the disease and treatment by splenectomy ultimately became necessary. In the third group were the very acute cases with severe bleeding and rapid development of anaemia; the patient was usually toxic, leucocytosis was present, and death occurred in spite of splenectomy. Haemorrhage in the fundus was far more frequent than in the benign form of the disease. In some of these patients many intravascular thrombi were found after death, and the purpura was merely one symptom of a fairly characteristic syndrome, the cause of which is unknown, though it has been related by different authors to periarteritis nodosa and to acute disseminated lupus erythematosus.[4] Another fatal form of acute purpura was associated with diminution of the number of megakaryocytes in the marrow, or megakaryophthisis. This is in contrast with the benign acute form of thrombocytopenic purpura and the chronic form, in both of which the number of megakaryocytes is normal or increased. Many young forms may be present[5] in the ordinary case, and it is suggested that there may be a defect in maturation. Splenectomy is contraindicated in acute thrombocytopenic purpura, as the mild cases get better without it and the severe are not helped, but it is the only reliable treatment in chronic thrombocytopenic purpura. The injection of moccasin snake venom is of some therapeutic value in the chronic disease, though it is only a palliative. Egerton Elliott,[6] looking at his cases from a rather different standpoint, emphasizes that idiopathic thrombocytopenic purpura is relatively rare, accounting for only forty-two out of approximately 700 purpuras which

[1] *British Medical Journal*, 1938, **1**, 1060; **2**, 996.
[2] *J. Amer. med. Ass.*, 1939, **112**, 880.
[3] Ibid., 101.
[4] *Arch. intern. Med.*, 1939, **63**, 553.
[5] *J. Amer. med. Ass.*, 1939, **112**, 879.
[6] *Bull. N.Y. Acad. Med.*, 1939, **15**, 197.

have passed through the spleen clinic of the Presbyterian Hospital. He has come to feel that thrombocytopenic purpura in children generally presents a different picture and a different problem from that observed in adults. In childhood it tends to be a self-limited disease, characterized by spontaneous recovery, while in adults chronicity and recurrence are the rule rather than the exception. Elliott emphasizes the importance of a period of careful investigation and observation to rule out all other diagnostic possibilities before it is decided to remove the spleen. When these precautions are taken the results of splenectomy in idiopathic thrombocytopenic purpura are satisfactory in 85 per cent. of cases. In a small group of atypical or secondary purpuras treated by splenectomy nearly one-half died, either from the effects of the operation itself or from the disease of which the purpura was merely a manifestation. The experience of Rosenthal and Egerton goes to show that splenectomy for purpura should rarely, if ever, be regarded as an acute emergency, and that the diagnosis of a primary or idiopathic thrombocytopenic purpura, likely to be cured by splenectomy, should only be made after all the aetiological factors known to be associated with the appearance of secondary purpura have been carefully excluded.

SCIENTIFIC EXHIBITS AT THE ROYAL SOCIETY

The cyclotron made a public appearance at the Royal Society's annual conversazione at Burlington House on May 24 in two exhibits, both lent by the Science Museum. One of these was a mechanical model illustrating the principle of this mysterious apparatus, the use and function of which are scarcely known outside a few physics laboratories. Even the model did not convey much to the uninstructed mind; an ion was represented by a steel ball travelling in a series of grooves, and the repeated acceleration of ions which takes place in the cyclotron under the influence of electrical and magnetic fields was represented by the ball rolling down a ramp. The other model was the instrument used by Professor Lawrence of the University of California in his first nuclear transmutation work in 1932. It was originally called the high-speed ion apparatus, and was the first cyclotron to produce a beam of energy exceeding a million volts. Perhaps some day, if the cyclotron becomes established in physical medicine and makes radium and *x* rays forgotten things, these instruments may be regarded with the same awe as one would look at Marconi's first aerial or Roentgen's original vacuum tube. Some of the other physics exhibits which the Royal Society had arranged for the entertainment of its guests were more astonishing than ever in the precision to which measurement can be carried. Rapid thermopiles were shown for muscle-heat measurements; for quickness and accuracy the muscle thermopile must be very thin and well insulated, and these instruments with mica and bakelite insulation on each face had a thickness of 40 and 50 microns, or about one five-hundredth of an inch. Then there was a micromanometer from the National Physical Laboratory designed to measure differences of water pressure down to one-millionth of an inch; and an experiment on steels was described which has been carried on for 85,000 hours for the detection of "creep" under sustained loads, and no movement so far has been detected within one twenty-thousand-millionth of an inch. So there are some things stable in this world of change. One turned with relief to natural history, to the armadillos from the Natural History Museum, which are better protected than a dictator; to the turtles which have been carried across the North Atlantic from the Gulf of Mexico to be stranded on the shores of Britain; to the fauna of Plymouth Sound, showing how areas of rock, shelly and pebbly gravel, clean sand, and black mud all support their own typical marine animal communities; and the resupination of flowers and leaves, as illustrated in the extraordinary twists and inversions of orchids and pitcher plants. The pedigree of the garden plum was another exhibit of interest. It takes nothing from its flavour to be told that it is a hexaploid of 48 chromosomes, a double hybrid from the sloe and the cherry plum, the former with 32 chromosomes and the latter with 16. This morphology accounts for its yellow and green flesh and its red and blue skin. But even in natural history the investigator who deals with infinitesimal fractions is at work. Two of them showed how to measure the oxygen consumption of a fly by suspending it in a vessel with a piece of paper attached to its back, the measurements being made with a respirometer; also to determine how the frequency of wing beat of a fly, as determined by the pitch of the note emitted, is affected by changes of atmospheric pressure, for which purpose a microphone and loud speaker are necessary. One exhibit of immediate practical utility was a model room illustrating the application of chemical warfare for the destruction of bed-bugs and their eggs. The chemical used is heavy coal-tar naphtha, which at a temperature of 60° F. or over gives a sufficient concentration of vapour to be lethal to the bed-bug within twenty-four hours. Naphtha vapour is not harmful to man, and families in adjoining houses or tenements need not be moved while fumigation is in progress. The naphtha is applied in liquid form to light cotton diffusion screens hung about three inches from the walls. The process seems very suitable for disinfestation of tenement property in large cities.

THE RETARDED CHILD

Competent detailed investigations of small groups of persons, especially of children, may be of more value in the elucidation of social problems than collections of statistics based upon the less effective mass examination of large numbers. At all events, such careful individual inquiries into the conditions of life, work, play, and intellectual activity and progress of the few are absolutely necessary supplements to the guessing of average facts about the bulk; and certainly the cumulative effect of a number of such small-group

studies is to present a much more realistic picture of the actual conditions in which large numbers of people have their existence. An able presentation of such a study is to be found in a small book by Mr. Charles S. Segal, a London elementary school teacher of special experience, entitled *Penn'orth of Chips*.[1] The title is taken from the reply of one of the boys who were the subjects of the investigation to the question as to his diet. He appears to have been fed mainly on bread and tea, with butter added to distinguish the principal daily meal from the others, and the dish indicated by the title to celebrate the weekly festival of Saturday night. The number of children in the group was only twenty-six; they were, in fact, the members of a class for backward children in an L.C.C. elementary school in North Kensington. The various aspects of the social and educational life of each child were, however, individually explored, and may be indicated by the main chapter headings: "mental testing," "the classroom," "home environment," "delinquency and leisure," "mother and child," "food," "school camps," "nursery schools." In each case the author relates the findings in this group of boys to wider conclusions drawn from other similar groups and greater numbers. The thirty-odd pages devoted to physical fitness, and food, feeding and dietetic experiments, will perhaps interest medical readers most, but one merit of the whole work is its compact brevity, and another is the vividness to which this leads. For example, in connexion with a shop-keeping lesson, the boys paid a visit to a commercial firm, and a "new sensation felt by them was walking on a carpet." Their expressions and downward looks made it evident that they had never walked on a carpet before. The importance of studies such as this is very great, and the indisputable conclusions to which they all lead with regard to physical and mental welfare alike are such as to show that there is more hope for dull and backward children than is commonly recognized, and that the need for appropriate national action is imperative. Not one political party alone is concerned with this, and the author's two concluding paragraphs with their political implications were quite unnecessary. The worth of the book is enhanced by an introductory note by Dr. Cyril Burt.

[1] *Penn'orth of Chips: Backward Children in the Making.* By Charles S. Segal. London: Victor Gollancz. (3s. 6d.)

STORED BLOOD

We publish at page 1202 of this issue a letter from Professors C. R. Harington and A. A. Miles in which they answer some important questions in connexion with the storage of blood for use in emergencies. From their work it appears that the best way to treat blood for storage is to dilute it with half its volume of saline containing 1.05 per cent. citrate, 0.3 per cent. glucose, and 0.15 per cent. sulphanilamide. "Under these conditions," they write, "we believe that blood can be kept in a satisfactory condition for periods up to fourteen days." This communication of Professors Harington and Miles may profitably be read against the background of other recent work on the subject.

Actual war in Spain and threats of war throughout Europe have stimulated much interest in the use of stored blood. It is clear that blood to which a variety of anti-coagulants have been added may be kept at temperatures varying from 0° to 6° C. from two to three weeks or even longer and then be administered without danger. Stored blood has certain advantages over fresh blood: it can be collected at times convenient to both donor and doctor; the Wassermann reaction and the blood group can be determined in the course of routine laboratory work; blood is always immediately available and no delay is caused in sending for and testing donors. The administrative advantages of stored blood are obvious and its importance in war-time conditions, where it is used largely for cases of acute haemorrhage, undoubted. Its therapeutic value in civil practice, apart from severe bleeding, is perhaps not so well established. Dr. Biddle and Dr. Langley[1] reported in this *Journal* recently that they had used only stored blood for the last 150 transfusions given at the Ipswich Hospital, and were well satisfied with the therapeutic results. Cameron and Ferguson,[2] without analysing the type of case treated, report satisfactory results from 1,000 transfusions of stored blood in Philadelphia. Kolmer[3] has, however, recently questioned the advisability of using citrated blood preserved for longer than three days in any case other than one of sudden haemorrhage. After a special study of the bactericidal activity, phagocytic activity, the cytology of the white cells, and platelets of preserved blood, he concluded that blood stored longer than two to three days should not be employed in the treatment of the anaemias, haemorrhagic dyscrasias, or infections, as there occurred a rapid disintegration of the white cells and platelets together with deterioration in bactericidal activity. Rhoads and Panzer[4] have also stated that blood stored for longer than three days is valueless when given to combat the haemorrhagic tendency in jaundice due to deficiency of prothrombin. The same objections would doubtless apply to the use of dried blood. Naoji Kiguchi[5] has emphasized the value of dried blood redissolved in sodium chloride, Ringer, or dextrose solution. To obtain blood powder the cells are apparently removed from the plasma and stored at a low temperature until dry. The resulting powder is then redissolved when required in a concentration of about 3 to 6 grammes per 100 c.cm. In general 10 c.cm of blood yields 1.63 grammes of powder. The solution, of which on an average about 300 c.cm. is injected, is very dilute compared with normal blood. Kiguchi claims successful results. The red cells, haemoglobin, and white cells all increase. But if there is a pre-existing leucocytosis transfusion results in a fall in white cells. The blood pressure also rises. The author states that the powdered blood solution has not the same toxicity as haemoglobin and that therefore there are no renal complications. There may sometimes be

[1] *British Medical Journal*, 1939, **1**, 555.
[2] *Surgery*, 1939, **5**, 237.
[3] *Amer. J. med. Sci.*, 1939, **197**, 442.
[4] *J. Amer. med. Ass.*, 1939, **112**, 309.
[5] *Dtsch. Z. Chir.*, 1938, **250**, 83.

a slight rise of temperature. Determination of the blood groups is also said not to be necessary, though on theoretical grounds the powder should be prepared from blood of Group AB, since this contains neither α nor β agglutinins. The exact method of preparation of the blood powder is not altogether clear, and there are many theoretical objections to its use which require investigation. It is obvious, however, that should the author's claims be substantiated dried blood would offer considerable advantages for use in war time, when the question of transport of fluid is always difficult. Apart from the general proposition that stored blood is good in certain circumstances, precise information is lacking on many points. The ideal anti-coagulant is still to be found: we are still ignorant of the optimal proportion of diluent to blood and of the effect on the blood of the composition of the glass or of the container and of substances possibly given off from corks or caps. Possible advantages to be obtained from storing blood with some anti-bacterial substance are being investigated. It may be that, when the basic mechanisms underlying blood coagulation and fibrinolysis are unravelled, the whole problem of storage will be greatly simplified.

PATHOLOGY OF MÉNIÈRE'S SYNDROME

The death of two patients soon after an operation for section of the eighth cranial nerve has provided Hallpike and Cairns[1] with the opportunity of studying the pathology of Ménière's syndrome. The outstanding feature in both cases was an enormous dilatation of the saccule, which occupied nearly the whole of the vestibule. The cochlea showed a striking abnormality in the disposition of Reissner's membrane, which seemed to have disappeared in places, an appearance brought about by a gross dilatation of the scala media with displacement of Reissner's membrane on to the wall of the scala vestibuli and obliteration of its perilymph space. At the apex of the cochlea Reissner's membrane projected through the helicotrema into the apical portion of the scala tympani. The changes in the saccus endolymphaticus also affected the soft connective tissue normally surrounding it; in each case this was absent and the epithelium of the saccus was in direct contact with dense fibrous tissue inseparable from the surrounding dura. In general terms the dilatation of the endolymph system corresponds to the changes described by Wittmaack, under the name of "hydrops labyrinthi," as representing the reaction of the labyrinth to damage from bacterial or other toxins reaching it through the round window or by the blood stream. It is hard to understand why the dilatation affects the saccule and cochlea more than the vestibule and semicircular canals, although the symptoms are so obviously vestibular. This may be explained, however, by the fact that the utricular wall, particularly in its upper part, is conspicuously more dense than the saccular wall, so that the dilatation is more obvious in the saccule, though the pressure effects are felt in all the sensory end-organs of the membranous labyrinth. Interesting from the purely clinical point of view is a discussion of the paroxysmal disorder of labyrinthine function in terms of anatomical changes. In the closed fluid system of the normal membranous labyrinth any increase in the volume of the endolymph will be met by an expansion of its thin and elastic membranes with expulsion through the cochlear aqueduct of a corresponding volume of perilymph. The resulting pressure change affects the cerebrospinal fluid system as a whole and is therefore negligible. But once the dilatation of the endolymph system at the expense of the perilymph has attained its maximum the fluid system of the membranous labyrinth, from being insensitive, becomes extremely sensitive in its pressure response to minute increases in the volume of endolymph. These bouts of raised pressure result in an asphyxia of the labyrinthine end-organs with a temporarily lowered function of the affected labyrinth. A pressure level which suffices to bring about an anoxaemia of the labyrinthine end-organs and so precipitate an attack is nevertheless insufficient to interfere with the secretory activity of the stria vascularis, which sustains this pressure level. Attention is drawn to certain peculiarities in the arterioles of the stria vascularis, which account for its greater resistance to pressure changes. Vertigo in unilateral disease is said to originate from overaction of the normal labyrinth, the affected side being temporarily inactive, though other writers adopt the contrary view, holding that in the course of a typical attack the affected labyrinth is strongly excited. Under the abnormal conditions of fluid pressure indicated by the anatomical findings in the present two cases there would necessarily be a marked increase in the sensitivity of the internal ear to displacements of the stapes footplate, resulting from either Eustachian obstruction or the impaction of wax upon the tympanic membrane. This explains the cases in which the attacks of vertigo are relieved by the removal of wax or by Eustachian inflation.

[1] *J. Laryng. Otol.*, 1938, **53**, 625.

We regret to announce the death of Dr. A. Logan Turner, the well-known Edinburgh laryngologist and past-president of the Royal College of Surgeons of Edinburgh.

It is now confirmed that the third International Neurological Congress will be held in Copenhagen from August 20 to 25, and the following subjects have been put down for discussion: (1) hereditary nervous diseases, (2) the autonomic nervous system and endocrinology, (3) avitaminosis. The honorary secretary for Great Britain is Dr. Macdonald Critchley, 137, Harley Street, W.1.

The Board of Control, with the approval of the Minister of Health, has appointed Dr. T. R. Forsythe, D.P.M., deputy medical superintendent of the Kent County Mental Hospital, Maidstone, to be a Commissioner to fill the vacancy caused by the appointment of Dr. A. E. Evans as a Chancery Visitor.

WAR WOUNDS AND AIR RAID CASUALTIES

The following is one of a series of lectures on the Treatment of War Wounds and Air Raid Casualties recently delivered at the British Postgraduate Medical School

GUNSHOT WOUNDS OF THE UPPER EXTREMITIES

BY

CLAUDE FRANKAU, C.B.E., D.S.O., M.S., F.R.C.S.

In the treatment of gunshot fractures of the upper extremity several points require special attention. (1) As regards the wound itself, excision of the track may be extremely difficult in the forearm owing to the close apposition of tendons to the bone and the limited space available. This can be overcome to a certain extent by free skin incisions. (2) Bone fragments can be more freely removed in fractures of the shaft of the humerus than in those of the lower extremity, as shortening in the upper limb is of no great importance. Apposition of the two ends of bone is, of course, essential after removal of fragments. In the case of the radius and ulna it seems that removal of small bone fragments, which in all probability will necrose, is preferable to their conservation, as any gap can be filled in later by grafting. (3) Nerve lesions are more common in the upper than in the lower limb, and are of greater importance. Their early recognition is essential. (4) The most conservative attitude must be adopted as regards amputation, since the replacement of the upper limb by any apparatus is but a poor substitute for the natural limb, however deformed.

Fractures may be divided into four groups: of the shoulder girdle; of the upper arm; of the forearm; of the wrist and hand.

Fractures of the Shoulder Girdle

Gunshot wounds of the clavicle rarely come under treatment, as the injury is likely to be fatal, either from involvement of the subclavian vessels or of the lung. If no such complication obtains, after excision of the wound and removal of any sharp spicules of bone the case should be treated on the ordinary lines—that is, by Sayre's method or by a Hey Groves splint. There is remarkably little disability after removal of large portions of the clavicle. Fractures of the scapula not associated with a chest wound or with an injury of the upper end of the humerus and shoulder-joint are so uncommon that no special mention need be made of them.

Fractures of the Humerus where the Shoulder-Joint is Involved

Here one point is of special importance: in a considerable proportion of these cases the projectile may have entered the chest cavity, and this should be suspected where only a wound of entry is present. For first-aid treatment nothing more is needed than a bandage fastening the arm to the side and a sling. At the casualty clearing station, after excision of the wound and treatment of the joint cavity, bone fragments are removed as conservatively as possible, since a flail joint is of much less value than a joint ankylosed in a good position. Provided the situation of the wound allows it, a Thomas splint with an extension is the most useful for transport purposes. Where the wound is too extensive to admit of the use of the Thomas splint the patient can usually be transported in comfort with the arm bandaged to the side.

At the base, fixation of the arm in an abducted position with extension is essential: the extension may be taken by means of strapping applied just above the elbow or by means of a pin or wire through the olecranon, the forearm being flexed at the elbow and slung from a Balkan beam: by this latter means movement of the wrist-joint and elbow-joint is possible. As ankylosis is almost inevitable in cases of severe comminution the optimum position should be aimed at from the first—that is, abduction to 60 degrees with a few degrees of external rotation and with the elbow slightly in front of the coronal plane.

Fractures of the Shaft of the Humerus

Usually these wounds are associated with considerable comminution of bone and in many instances injury to the musculo-spiral nerve or brachial artery. In the front area, after applying a dressing, the limb may be bandaged to the side, the forearm being supported by a sling or bandage: this method is applicable to most cases, except those fractures just above the elbow-joint, for which a simple splint such as an internal angular is desirable.

At the casualty clearing station the wound is excised in the routine way, careful examination for nerve injuries having first been made. For transport to the base a straight Thomas splint is usually satisfactory, but it must be remembered that this method does not as a rule give satisfactory alignment in fractures of the lower third when the forearm is extended, and it should only be regarded as a temporary measure. At the base the straight Thomas splint may be retained to support the upper arm, extension being obtained by pin or wire traction through the olecranon and the limb being slung from a Balkan beam in an abducted position with the forearm flexed. This method allows of free access to the wound and good alignment of the fragments, and, further, finger, wrist, and elbow movements may be started at an early date. As soon as the condition of the wound allows the limb may be put on a bent Thomas arm splint, which allows the patient to be up, or a plaster-of-Paris splint may be employed.

Fractures involving the Elbow-joint.—These are commonly of a severe nature, with much bone injury and often with associated nerve-trunk injuries. In the forward area an internal angular or Jones interrupted arm splint should be applied for transport. At the casualty clearing station the wound is treated in the ordinary way; small detached fragments of bone are removed, but great care should be taken to preserve as much bone as possible, and especially the olecranon process. The joint cavity is then irrigated and closed by suture of the capsule or by the use of fascial flaps. For transport to the base a straight Thomas splint with an extension, the hand being in full supination, is the most suitable method.

At the base the straight splint should be used for a limited period only—not more than fourteen days—owing to the difficulty in obtaining flexion subsequently if the arm is kept extended for too long: a Jones interrupted arm splint may be used or the limb may be supported, without splinting, on pillows, the forearm being flexed to a right-angle at the elbow. Ankylosis or greatly restricted movement is almost inevitable; the limb there-

fore must be put in the most useful position at as early a date as possible. In most cases flexion to 75 degrees with the hand midway between pronation and supination is the optimum position. Formal excision of the joint is rarely called for, but may be necessary in severe infections to save the limb.

Fractures of the Forearm

One or both bones may be involved, muscles and tendons are often severely damaged, and nerve injury is not uncommon. The preservation of a useful limb therefore presents very considerable difficulty. For transport to the casualty clearing station immobilization on a straight splint, supporting the hand as well as the forearm, is sufficient. At the casualty clearing station, after the routine treatment of the wound, bone fragments, especially those driven into muscle, should be removed. It is better to leave a large gap between the bone ends and a wound that heals readily than to leave small fragments of bone, which inevitably necrose and delay healing for months. The gap can subsequently be filled by bone grafting, which was carried out successfully in many of these cases. Repair of divided nerves and tendons should be effected if possible, though this is not often the case.

For transport to the base a straight Thomas splint with a strapping extension, the forearm being in full supination, is the best method. At the base the straight Thomas splint may be used for the first fourteen days, after which time a bent Thomas splint may be applied. Plaster-of-Paris, though of value later, is not very suitable in the early stages owing to the difficulty in controlling the fractured bones without extension.

Fractures of the Wrist and Hand

Wounds of the carpus are often explosive in type, with a large exit wound and with great damage to tendons: the wrist-joint is commonly involved. In the forward area, after dressing, a simple flat splint is applied. At the casualty clearing station, when the wound has been excised, the carpal bones are carefully examined, and any that are badly comminuted are removed. Closure of the capsule of the wrist-joint is usually impossible, and the wound cavity is best packed with gauze smeared with petroleum jelly. Primary amputation should only be carried out where tendons, vessels, and nerves have been completely destroyed.

Splinting of wrist-joint injuries with extensive wounds is difficult, but for transport to the base a simple flat splint extending from the roots of the fingers to the elbow-joint is generally adequate. At the base, provided healing is proceeding satisfactorily, the hand and wrist should be put on a Jones cock-up splint or in plaster, the wrist being dorsiflexed. On the whole this type of wound gives poor results, but even if partial use of one finger and the thumb can be obtained this is better than any artificial limb.

At a joint meeting of the Yorkshire Regional Committee and the Sheffield Regional Committee of the British Hospitals Association, held in the General Infirmary at Leeds, approval was given to the creation of two divisions to cover Yorkshire (excluding the Cleveland area) and parts of Derbyshire, Lincolnshire, and Nottinghamshire: one division to be centred on Leeds and the other on Sheffield. Power will be given to the divisional authorities to split these two divisions into regions and subregions. The object is to co-ordinate hospital services and avoid duplication and overlapping.

THE ENTRANCE INTO MEDICINE*

BY

HUGH LETT, C.B.E.

President, Royal College of Surgeons of England

The medical curriculum to-day is very different from what it was forty-five years ago when I became a medical student. At that time *x* rays and radium had not been discovered, abdominal operations were few, and the surgery of the brain and thorax was rudimentary; nothing was known of vaccines, vitamins, or hormones, little of blood diseases, and the work in the clinical laboratories was confined to what we now regard as the simplest examinations. There were no ante-natal departments or special departments for diseases of children or infant welfare, for orthopaedic, for genito-urinary, or for chest surgery, to mention only some of those there are to-day.

Fundamental Principles

But although so much more is now known about every branch of medicine and surgery and there is so much more to learn, the fundamental principles of medical education are the same. Now as then there are things that must be known, some that ought to be known, and others with which the student should have some acquaintance if only to satisfy examiners. But that is not all, for in addition to acquiring a certain amount of medical knowledge the student is taught to cultivate accuracy, observation, and deduction, and to reason carefully, so that he or she may be able to bring a trained intelligence to bear upon medical problems.

Medical education should mean much more than the acquisition of so many facts and theories; it should train the mind in such a way that it may be ready to take the initiative, to adjust itself quickly to new situations, to apply to each case in a free and understanding way the principles, the routine, the discipline which have become second nature. The years spent as a medical student are only an introduction to a study which must continue throughout professional life.

The Pre-clinical Years

The curriculum is long and you may feel impatient at the time that must elapse before you reach the wards and come into contact with sick people. You may feel that the time given to chemistry, physics, and biology is wasted, and that a great part of what you are taught in anatomy and physiology is quite unnecessary; yet these subjects have a very important bearing on clinical work. A preliminary knowledge of them is essential if you are to understand the various methods of examining your patients, many tests that are carried out, and certain forms of treatment.

Let us consider for a moment some of the things we owe to physics. First of all the *x* rays, which have proved of such immense value in the diagnosis of disease in every part of the body, and radium, which like the *x* rays has done so much for inoperable cases of malignant disease. Physicists discovered the ultra-violet and infra-red rays, and, while both have their value in treatment, the former play an important part in the demonstration of ultra-microscopic viruses. I need hardly refer perhaps to the importance of a knowledge of electricity, but as one instance I may mention the recent discovery that waves of electricity pass over the brain, and that alterations in these waves tell us of the presence of disease or a tumour. At present it is possible to localize only those lesions that are on the surface, but there can be no doubt that before long the method of electro-encephalography will enable us to determine the exact site of a tumour lying deeply in the

* An address (abridged) given at the London (Royal Free Hospital) School of Medicine for Women, University of London, on June 1, 1939.

brain substance. Lastly, we must not overlook the remarkable and ingenious developments of certain optical instruments by which we can now see the interior parts of the body.

Biochemistry has taught us about vitamins, the vital importance of the secretion of the ductless glands, and has given us many remarkable drugs which have revolutionized the treatment of a number of diseases at home and in the Tropics, so that now with the help of these drugs we expect a recovery in many cases which formerly would have been regarded as hopeless.

Lister by his discovery of the principles of antisepsis laid the foundations of modern surgery, and it is impossible to over-estimate the importance of his work; but the extraordinary developments of the last forty years could never have taken place had it not been for our physicists and biochemists who made these developments possible. Much of the valuable experimental research that is being done to-day could never have been attempted had it not been for the advances that have been made in physics and biochemistry. And so, if we recognize how much medicine and surgery owe to them, it is not difficult to understand why physics, chemistry, and biology form the first part of the education of the medical student.

Anatomy and physiology teach us the structure of the normal human body, the functions of its various organs, and the part they play in the life of the healthy individual. It is obvious that we must have a clear understanding of the body in health before we attempt to recognize the changes that take place when it is diseased, and before we can understand why these changes give rise to the various symptoms and signs that show illness and disordered function.

An important advance in medical education was made recently when it was decided that while the student is still working at anatomy and physiology he should be taught something of the elementary principles of medicine and surgery and learn certain methods of examination which previously were taught only in the clinical years. This elementary clinical instruction helps you to appreciate more clearly the importance of anatomy and physiology, for the gap that previously existed between them on the one hand and medicine and surgery on the other is now bridged, and they are no longer treated as independent parts of the curriculum.

The Clinical Years

When you reach the wards and begin clerking and dressing you will find that among other duties you have to take histories of the patients allotted to you. A good history includes an account of the patient's illness and his previous health, his present symptoms, and finally a description of what you have been able to discover after careful examination, not only of the part that is principally affected but of the whole body.

Now you may feel that all this note-taking is very troublesome and that it is unnecessary. I remember one student who said that he really did not see why he should spend his time taking notes for the benefit of the hospital. I may say, perhaps, that from my recollection of his notes any benefit that the hospital could have derived from them was remarkably small! But he was approaching his work in the wards from the wrong angle. It did not occur to him that the taking of histories was an important part of his education. Careful, systematic note-taking and a routine examination of the whole body in every case will teach you method, develop your powers of observation, and impress the details of cases on your memory. The importance of examining the whole body is sometimes overlooked, and the omission has been followed by serious results.

Try to make your own diagnosis in every case. At first you will find it very difficult and often impossible, but as your knowledge increases you will be able to do so more and more frequently and with greater success. Do not be too much afraid of making mistakes. We all make them; but if we make our mistakes in spite of having exercised care and thought, and if when we have made them we try to find out where our reasoning or observation was at fault, we may learn more from our mistakes than from our easy or sometimes fortunate successes.

Try so far as possible to make a preliminary diagnosis before the results of the *x*-ray examinations and the clinical laboratory tests are available. In many obscure cases such a diagnosis will not be possible, nevertheless it is a sound practice to try to make it. Some day you may be in such a position that these examinations cannot be made, and you may have to make a diagnosis when you and your patient are far from an *x*-ray apparatus or a clinical laboratory. But an even more important reason for following this method is that by doing so one acquires keener powers of observation, reasoning, and deduction. The rapid progress made in medicine and surgery has brought a certain danger in its train: the possibility that too much reliance may be placed on the result of tests in the laboratory and examinations in the *x*-ray department at the expense of careful clinical examination. This can never be replaced.

A full and careful study of the patient, body and mind, is the essential foundation on which our healing art is built. The training of our students must be directed above all to the cultivation of careful clinical observation and an understanding and appreciation of signs and symptoms. In this way only can they acquire that vital yet intangible something we call clinical instinct. Clinical instinct, born of observation, nourished by experience, and educated by deduction, must and always will remain one of the greatest and most important gifts a medical man can have.

The Approach to the Patient

It is perhaps remarkable that in the past the medical student should have received so few hints on the attitude to be adopted towards patients, the way to approach them, to manage them, to obtain their confidence. On entering practice he has had to rely on his natural gifts and instinct, or perhaps, if he has been fortunate, upon his ability to copy an admired clinical teacher. And yet the importance of understanding the patient and appreciating his mental condition and outlook has long been recognized, even by laymen. Montaigne writes:

> "The Physition hath neede of many parts, divers considerations and severall circumstances to proportion his desseigne justly. He ought to know the sick man's complexion, his temper, his humour, his inclinations, his actions, his thoughts and his imaginations."

The introduction into the curriculum of psychology and some knowledge of the psychoneuroses and of the important part the mind plays in good and bad health should be a very material help to both doctor and patient. But the physician who in the approach to his patient cultivates sympathetic understanding, cheerfulness, and confidence may be said to have acquired already the fundamentals of bedside or consulting-room psychology.

Sentimentality must of course be avoided, but if you can develop a sympathetic understanding of your patient's anxieties and difficulties you will find that you can help him greatly, not only in his illness but in his convalescence. You will be able to do much to reassure him, to remove great and little discomforts, both physical and mental, and so make his path easier.

A quiet cheerfulness is also a great asset. The gloomy physician "maketh the sick man sicker." Sir Benjamin Brodie said that it was a good rule in the practice of an art, as in the common affairs of life, to look on the favourable side of the question so far as it was consistent with reason to do so. But the cheerful attitude

does not mean that aggressive, bouncing cheerfulness which can be so very irritating, especially to the sick man. "A Physition's first entertainment of his patient should be gracious cheerful and pleasing." If you should be anxious about your patient try to conceal your anxiety from him, and remember that while you are making your examination and talking to him he will be searching your expression to learn whether you really believe in the assurance you are trying to give him.

As for confidence, this can only come with experience and hard work, by learning from what you have seen and read, and by thinking over the reasons for your successes as well as your mistakes. Nothing is more ugly than conceit or vanity, but they are very different things from that confidence in which, said the prophet of old, shall be your strength. Those who are naturally nervous may find this confidence extremely difficult to acquire, but I think they would be much helped by reading an address which Dame Louisa Aldrich-Blake gave to this School nearly forty years ago. Here is one extract:

"From the very beginning of one's career one must school oneself to look upon nervousness as a disability one must do one's utmost to conquer. For those whose temperament makes them need this discipline most the process is a very unpleasant one. I suppose the first step is to look it in the face as an enemy."

SCIENTIFIC TREATMENT OF DELINQUENCY

The seventh annual general meeting of the Institute for the Scientific Treatment of Delinquency was held at its new house, 8, Portman Street, W., on May 22, Dr. E. T. JENSEN presiding. The annual report stated that the year had been noteworthy for two important developments in the Institute's educational work. One of these was a week-end course for doctors, and the other the recognition of the Institute by the University of London as a centre for extension lectures. The subjects of research which have occupied the year have included the treatment of sex offenders, general investigations on intelligence in relation to crime, the aetiology of exhibitionism, and temperament tests. In the psychopathic clinic 166 new patients were treated during the year, of which number 106 were drawn from the courts and twenty-four from medical practitioners and clinics. The number of cases described as psychoneurotic was fifty-three, and the number of character cases (including psychopathic personalities and sex perverts apart from neurosis) was fifty-six. Theft was the chief type of offence represented (seventy-six), sex offences coming next (forty-six). The Institute applauded the Criminal Justice Bill as a humane and progressive measure. "We believe that the work of the Institute must have played an important part in demonstrating the feasibility of and need for such [scientific] treatment, and we are grateful indeed to Sir Samuel Hoare for what is, in effect, our charter."

Young Offenders

Dr. DENIS CARROLL, co-director of the Institute, gave an address. The medical attitude towards the treatment of delinquents, he said, had changed. Formerly the doctor was concerned mainly with the question of ascertaining the criminal's responsibility for his actions, but now doctors had discovered that it was possible to treat delinquents by methods originally intended for the treatment of mental disorders. The most important group concerned consisted of young offenders. There were two peak periods associated with delinquency, one of them round about 14, produced by the stress of leaving school added to the emotional stresses incident on puberty, and the other at about 16 to 17, associated with the well-known difficulties of adolescence. One of the hardest problems to come up against was the juvenile who had formed the habit of crime. He had seen children of 8 or 9 who had been delinquent from their earliest years. It was not a question of heredity. He did not believe there was such a person as the born criminal, at any rate not in the sense that the child's instincts were more criminal than those of older people, but no doubt strength of instinct might be inherited, and this was capable of being turned to good or bad use.

Among juvenile delinquents some 10 per cent. had gross mental defect and 50 per cent. were backward. Roughly speaking, there were three or four times as large a proportion of backward children among delinquents as among the ordinary child population. At one time, under the influence of the Italian school, it was thought there was such a thing as a physical criminal type. So far was this from being true that no physical factor of any kind could be found which might be regarded as specific of delinquency. In a very small group it had been discovered that on the whole, but not invariably, the asthenic type of physique was shown, but that amounted to no more than an interesting fact without significance. The offences which children who had suffered from chorea or sleepy sickness committed were not different from those associated with violent temper. It was not uncommon to find that a child who, for example, had had a fractured leg, with permanent shortening, by reason of his lack of capacity came to have a feeling of inferiority which might stimulate him to delinquent courses in order to "get even." But not many delinquents committed an offence merely because they wanted a certain glamour; when such children came to be studied their condition was much more complicated. A good deal of nonsense was talked about glandular conditions, but so far as was known there was no specific relationship between glandular disorders and crime. Some failures of development of the sex glands were associated with personal changes, and some pituitary abnormalities with gross changes in appearance, and there again it might be that a feeling of inferiority was at work.

Dr. Carroll went on to speak of nervous conditions, hysteria, and certain obsessional states—the kind of thing which always made a person want to go back to see if he had turned the taps off. A huge field was covered by these neurotic symptoms or, in a mild form, neurotic character traits. In such conditions offences might be related to the disease in the sense of being a symptom. A man with paranoic tendencies might believe that his neighbour was about to stab him, and anticipate the event by stabbing him in self-defence. If the neurotic state could be cleared up such persons would go back to the average level of capability to resist delinquent impulses.

It was common to speak of poverty as a cause of crime. Poverty was often associated with crime, but to describe it as a cause was a different matter. The relation was the same as that of bad housing. In such conditions the home was likely to be badly run, and in the sensitive child some form of delinquent behaviour might be produced. Unsuitable work and undesirable associates might stimulate delinquent response in certain subjects.

In conclusion Dr. Carroll described the elaborate procedure through which cases were put, the mental and physical examinations, the intelligence tests and the investigation of the social history. After the diagnosis had been made a decision was taken as to what should be done and how much supervision was necessary, and a report was made to the court or other body which had referred the case. The Institute arranged for any necessary treatment, medical or psychological, to be carried out. Re-education of the social sense depended on getting a thoroughly good rapport, for which the delinquents had not very much capacity, so that these methods were limited in their application. Where a persecutory element was to the fore the best results were got by analytical methods. The subject was encouraged to talk freely. Some of the best results had followed from this so-called superficial analytical treatment, always providing that there was no

underlying mental disorder and the habit of crime had not become established. The sociological methods employed included the choice of foster-parents and the arrangement of suitable work and companionship. Under the new Criminal Justice Bill it was hoped that local authorities would provide homes and hostels, which would make it possible to find the accommodation hitherto lacking. One aspect in which the Criminal Justice Bill was less than satisfactory was that it limited the period in which treatment could be given to one year. He would have liked to have seen it three years, and possibly experience might prove the necessity for an amending measure.

THE NEW CANCER SERVICE

Local Authorities to make Schemes

The Minister of Health has sent a communication[1] to local authorities drawing attention to the provisions of the Cancer Act, 1939, under which it is their duty to make arrangements to secure adequate facilities for diagnosis and treatment for all who are, or are suspected to be, suffering from cancer. Such arrangements must normally be submitted for the Minister's approval not later than March 29, 1940, but a longer period may be allowed in individual cases. Adequate facilities for the treatment of cancer must be provided both by surgery and by radiotherapy, including treatment by radium and deep *x* rays. Facilities for radiotherapy must necessarily be concentrated in those comparatively few hospitals which have on their staffs skilled radiotherapists and physicists as well as surgeons, which possess all the requisite specialized departments, and which contain enough beds to keep the radiotherapeutic department with its extensive equipment of radium and apparatus fully employed.

Co-operation between Local Authorities and Voluntary Hospitals

The Minister hopes that there will be full co-operation between the authorities and the voluntary hospitals in order to ensure the best use of existing beds, and the proper provision of additional beds where necessary. The hospitals which already hold supplies of radium and otherwise possess adequate facilities should be utilized to the greatest possible extent, and the Minister contemplates that the normal procedure will be for a number of local authorities in a region comprising several counties to base their arrangements on one of those hospitals. Surgical operation still remains the only practicable or the most suitable form of treatment for a large proportion of cases, and for this purpose it may be found necessary to make use of some hospitals in which radiation treatment is not available. Such hospitals should be used only for cases for which the use of surgery without irradiation has been decided upon after due consultation.

Facilities for Diagnosis

A sufficient number of suitable places for consultation and diagnosis will be needed, and these should be, wherever possible, in existing hospitals. They should be so situated as to serve those areas which are inconveniently distant from the treatment hospital, since a long journey may deter patients from seeking advice. In general, consultations should be arranged in conjunction with the treatment hospital, and consultants should be the appropriate members of the staff of that hospital. It is important also that after treatment patients should be kept under observation by means of periodical examinations, and these examinations should where practicable be held in the consultation clinic.

Records showing the history of each case must be kept. Steps should be taken to inform the public by suitable propaganda of the facilities available and to encourage their use. A technical memorandum for the guidance of medical officers of health is in preparation.

[1] Circular 1813. H.M. Stationery Office. Price 2d.

TECHNICAL PHARMACOPOEIAL COMMISSION

A meeting of the Technical Commission of Pharmacopoeial Experts set up by the League of Nations was held at Geneva last month. Dr. C. H. Hampshire (London) presided, and there were present also Professor Baggesgaard-Rasmussen (Copenhagen), Professor R. Eder (Zurich), Professor E. Fullerton Cook (Philadelphia), Professor L. van Itallie (Leyden), Professor M. Tiffeneau (Paris), and Professor E. Zunz (Brussels).

The chairman reported that the Reference Subcommittee on Galenical Pharmacy had been duly constituted since the last meeting, and had made some progress with the work of defining general methods of preparation and of unifying formulae. The Commission revised and extended a draft of the "General Notices" containing descriptions of general tests and methods, together with explanations of the terms and modes of expression to be employed in all monographs.

Drafts of eighty-five monographs, which had been prepared by members of the Commission since the last meeting, were presented for consideration. These were classified into groups of similar substances, such as alkaloids and alkaloidal salts, cinchona alkaloids, crude drugs, the digitalis group, mercurial compounds, the ergot group, general organic chemicals. Certain monographs from each group were chosen for detailed discussion, and general principles relating to all the monographs of each group were worked out. Arrangements were made for the preparation of new drafts in accordance with the decisions taken in relation to the individual monographs.

Problems for Investigation

In the course of the discussions various problems presented themselves for investigation, and the members of the Commission formed themselves into small groups for the investigation of specific problems, such as the tests for purity of quinine salts, the standardization of ergot and its preparations, the alkaloidal assays of crude drugs, the ash content of crude drugs. Individual members undertook to report on other subjects, such as the terminology relating to solubilities, thermometers, standards for colour and absence of turbidity, limit tests for heavy metals and other inorganic impurities, sterilization of solutions for injection, neutrality reactions of alkaloidal salts, the assay of acetyl-salicylic acid, various solubilities of alkaloids.

The draft of a report on doses, containing recommendations for usual doses and maximum doses, was discussed, amended, and adopted. A list of international names was drawn up and adopted tentatively. The list of drugs for description, prepared at the last meeting, was reviewed, and further allocations were made among the members, who undertook to prepare first drafts of new monographs.

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 24, with Mr. V. Warren Low, president, in the chair. The report and financial statement for 1938 were adopted. The total membership of the society is 287. Sixty-two widows and five orphans were in receipt of grants, and £4,990 was distributed among them. Each widow over 65 years of age received £75 and those under 65 £60, and each orphan received £50. Each widow and orphan also received at Christmas a present of £5. The expenses for the year amounted to £371, and the income was £5,431. Relief is only granted to the necessitous widows and orphans of deceased members. Membership is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross. The directors strongly urge medical men to join; the newly qualified or married would know that if they died before making provision for their wives their widows would not be left wholly unprovided for. On the other hand, if they left their widows provided for their subscriptions would help the widows of some less fortunate member of the profession. Full particulars, together with the terms of subscriptions, may be obtained from the secretary of the society, 11, Chandos Street, Cavendish Square, W.1.

Reports of Societies

RADIOTHERAPY IN UROLOGY

A special meeting of the Section of Urology of the Royal Society of Medicine was held on May 25 under the presidency of Mr. H. P. WINSBURY-WHITE.

Mr. B. W. WINDEYER, in opening the discussion on radiotherapy in urology, said that after nephrectomy for hypernephroma and carcinoma of the kidney an intensive course of high-voltage *x* rays should be given as a routine in every case. Such a procedure diminished recurrences in the scar and in the perinephric tissues. The bony metastases from hypernephroma were sometimes very radiosensitive, and often a metastasis could be controlled by *x*-ray therapy. In Wilms's tumour the percentage of cures by any method of treatment was very small, but there was a marked response to radiotherapy. About 50 per cent. of cases of carcinoma of the bladder were inoperable when first examined. In the inoperable cases radiotherapy was the only method which offered any chance of cure, but the treatment had been for the most part disappointing and accompanied by some degree of infection and severe pain. The insertion of radon seeds appeared to be the most successful method; the use of radium needles was less successful. Treatment by low-voltage high-intensity *x* rays had also been carried out, but it was too early to assess the results. In many cases of carcinoma of the cervix in which the growth was attached to the bladder wall complete regression could be obtained by the usual combination of radium application, by means of a catheter, and high-voltage *x* rays.

In carcinoma of the prostate he considered that palliative treatment with external radiation by high-voltage *x* rays was much superior to any other method. In some cases in which there was retention of long standing cystitis had been aggravated. To obviate this result endoscopic resection had sometimes been carried out with good results. The diminution in the size of the prostate as judged by rectal examination was not always proportionate to the symptomatic relief. This was due principally to differences in radiosensitivity.

Cancer of the penis had been the subject of extensive reviews in recent years. The treatment of this condition presented two problems—that of the primary lesion and that of the glandular metastases. Surgery was most favoured in America and Sweden, but radiotherapy had been advocated as first choice in some publications in this country. Out of twenty-one cases of carcinoma of the penis treated at Middlesex Hospital by radium from 1929 to 1935 ten were alive and free from recurrence, one was untraced, one had died from other causes four years after treatment, and the other nine had died with carcinoma present, eight of them with glandular metastases. It was recognized that just as good results could be obtained by amputation, but it was a great advance if the penis could be conserved. Eleven cases of tuberculous epididymitis had been treated during the last seven years, nine of them by the surface application of radium and two by *x* rays. In nine the result was satisfactory and no further treatment was required; in one case the condition recurred and orchidectomy was carried out, and in the remaining case the treatment was too recent for the result to be assessed.

Improvements in Technique

Mr. STANFORD CADE mentioned fifty-four cases of carcinoma of the bladder, all with histological evidence of malignancy. The results on the whole had been bad: thirty-six were dead, four untraced, and fourteen alive. An analysis of the unsuccessful cases showed that death occurred in the majority within twelve months of radiation. There was a definite operative mortality associated with the radiation treatment of carcinoma of the bladder. Of the successful cases, one patient was alive and well after seven years, two after four years, three after three years, and six after two years. Whatever conclusions were to be drawn from this analysis the material was not the first-class material selected for operation. Any improvement in treatment dated from the time when the total dose was increased by as much as 30 or 50 per cent. The best form of radiation treatment of carcinoma of the bladder was by the insertion of radium needles after open operation. Good exposure of the growth was essential. The advantages of open operation outweighed its inconvenience. If the conditions permitted the delivery of a dose of 8,000 *r*, complete regression of the tumour might be expected in the vast majority of cases, though this did not mean permanent regression or prevention of metastases. A dose of this magnitude would ordinarily cause a radium burn. The optimum dosage was 35 to 45 *r* an hour; at this rate it took nine or ten days to deliver in the average case 8,000 *r*. There were two sites of recurrences which were hopeful from the point of view of radiation: local recurrence in the suprapubic scar and recurrence in the inguinal glands, which could be submitted to teleradium therapy or surface application by plaques.

He had had fifty-one cases of carcinoma of the penis. The treatment of the primary growth was always by interstitial radiation—that is, insertion of needles. Of the fifty-one cases, eighteen were dead, twenty-eight alive, and five untraced. Of the eighteen dead five died of intercurrent disease without metastases. Cancers of the penis could be divided into two types, one suitable for radium therapy and the other for surgery. Such cancers were essentially skin conditions and therefore amenable to treatment by radium, but irradiation was contraindicated when the urethra was involved. The early case was suitable for radium, the advanced case for surgical treatment. As for carcinoma of the female urethra, he had treated a series of twelve cases between 1924 and 1937 and the end-results had been surprisingly good; six patients were alive and well, the longest period of survival being eleven years. The treatment was interstitial radiation supplemented in some cases by an intravaginal plaque.

Vesical and Prostatic Neoplasms

Dr. G. E. VILVANDRÉ said that benign papillomata of the bladder were successfully dealt with by diathermy, and those showing some degree of malignancy were treated by electrocoagulation, either alone or combined with radon seed implantation. More or less satisfactory results followed, but no real benefit seemed to follow external radiation of the bladder by *x* rays. With regard to the treatment of vesical neoplasm by means of *x*-ray contact therapy, in which Chaoul's tube or some modification of it was introduced into the bladder suprapubically, there were obvious disadvantages in this method. It should be remembered that good results had been obtained by some surgeons after total excision of the bladder.

Patients with carcinoma of the prostate were sent for *x*-ray therapy after operation or because they were inoperable already, showing secondary deposits in the bones, usually in the sacrum and the fifth and fourth lumbar vertebrae. Occasionally the greater part of the osseous system exhibited marked carcinomatosis of the osteoblastic type. To ask for good results in such conditions was to expect too much from any treatment. But what of the patients in whom only the prostate was malignant and the growth had not spread? He had never seen a cure by *x* rays, or heard of one from any reliable and honest source. Yet the prostate was easy to irradiate, there were at least three ports of entry, and large doses could be given without damage to the surrounding organs

and tissues or the skin. Carcinoma of the prostate was obviously very resistant. Of eleven cases of prostatic neoplasm three were alive, but these had only come for treatment during the last few months, and the other eight were dead, or untraced and probably dead. There was good evidence, however, that bleeding was often arrested for a while, and frequency of micturition had been considerably diminished—from four or five times to once a night. Prostatic enlargement when accompanied by sciatica or some form of rheumatism should never be dismissed as benign.

X-ray Therapy in Inoperable Conditions

Mr. WALTER W. GALBRAITH dealt with the subject of *x*-ray therapy in inoperable malignant tumours of the urinary tract. Seventeen cases of tumour of the bladder showed only a slight response to the treatment, and the results in patients with malignant papillomatosis were not encouraging, but in infiltrating carcinomata, although no case was cured, there was some regression of the growth, which in one case became operable. The Chaoul apparatus should be used for strictly localized growths in the base of the bladder—cases which normally presented technical difficulties from the surgical point of view. Six cases of carcinoma of the prostate were included in his series; all of them showed response to *x*-ray therapy. Sufficient time had not yet elapsed to justify any definite statement as to the scope of the treatment, but the method seemed worthy of further and more prolonged trial.

Dr. STRUTHERS FULTON said that while surgery was the treatment of choice for tumours of the kidney, such tumours appeared to be responsive to *x*-ray therapy, and in all cases in which any doubt as to operability existed such treatment should be tried. Tumours of the bladder, on the other hand, did not appear to be particularly sensitive to radiation, and the results in this group had been disappointing. The intracavitary method of *x*-ray treatment should be more extensively tried, but it was suitable only for strictly limited growths not exceeding 3 to 4 cm. in diameter. Any attempt to apply the method to more extensive growths was unlikely to meet with success. Tumours of the prostate appeared to offer a more hopeful field for radiotherapy and encouraging results had been obtained. Before instituting treatment one should consider whether the patient was in sufficiently good health to tolerate the skin reaction and the bladder irritability which was often occasioned.

Carcinoma of the Penis

Mr. CLIFFORD MORSON said that ten years ago he had stated that in carcinoma of the penis he considered radium to be the treatment of choice, and in support of that view he had shown on that earlier occasion five cases which had been treated, all of them apparently cured. Only one of those patients was now alive; this one had had a warty type of growth which was more suitable for radium treatment. The other four cases in due course developed recurrences and had to be submitted to amputation. He felt that in spite of these setbacks radium was still the treatment of choice, but he also thought they should be honest with their patients and tell them that there was danger that the treatment might fail and they would then have to submit to amputation. He did not believe, in view of the low malignancy of carcinoma of the penis, that there was great danger in the delay which might result from trying radium. He thought that nothing should be done to the glands in the groin at the time the primary lesion was removed. Something like 80 per cent. of the palpable glands in cases of carcinoma of the penis were inflammatory in origin, and it was his experience that the large majority of these palpable glands disappeared when the primary growth was removed. If at the end of three months the glands were still palpable they should be treated either by dissection or by *x* rays. As to carcinoma of the prostate, while *x* rays might destroy a part of the primary growth, what they were more sure to destroy was the morale of the patient, who suffered great pain and was much more ill when treated with *x* rays or radium than when left alone.

General Discussion

Mr. H. P. WINSBURY-WHITE said that the early results in bladder cases were not encouraging; it was not until the improvement in technique and increase in dosage to which Mr. Stanford Cade had alluded were brought about that successes were obtained. In discussing the implantation of radium needles into bladder growths he mentioned the necessity for pre-operative preparation and the small operative mortality with radium as compared with partial cystectomy. In the hopelessly inoperable type of case radium treatment, although there was no possibility of cure, had two important benefits: control of pain and control of bleeding. Mr. MOORE PATTERSON spoke of radiotherapy applied to neoplasms of the testes. In a group of cases the five-year survival rate was as follows: after radical excision, 6.6 per cent.; after orchidectomy only, 17 per cent.; after radiation only, 20 per cent.; and after orchidectomy and irradiation, 55 per cent. There was a strong case for prophylactic irradiation after orchidectomy for neoplasm of the testes.

Mr. H. T. SIMMONS spoke of the difficult case of the exsanguinated patient with a life-history of multiple papillomatosis of the bladder. One or two courses of deep *x*-ray therapy reduced the papillomas to a relatively manageable size for fulguration. This had been strikingly exemplified in nine cases treated during the last seven years. On a recent review of them he found there had been recurrence in only one. Dr. JACOBS spoke of the possibility of radium causing the disappearance of an otherwise inoperable bladder carcinoma. Of thirteen cases treated during 1935–6, seven had died, most of them having lived from six to thirteen months, and of the six surviving cases he had made a cystoscopic examination of four during the past fortnight and had found no sign of recurrence.

Mr. JOCELYN SWAN said that he had recently reviewed 300 cases of malignant disease of the bladder. About 45 per cent. of these cases were hopelessly inoperable when first seen, and not suitable for surgical measures of any sort. A good many of them had been treated by *x* rays or radium before coming to hospital, but he was not including these in his calculations. He included only those cases which he had himself treated with radium or deep *x* rays. He divided the bladder growths into those which were papilliferous and those which were of the solid infiltrating type. The latter included a number which were transitional, some which were adenocarcinomatous, and some squamous-celled. In certain of these cases radium had been used after a partial cystectomy. Of fifteen patients treated by radium or radon seeds, one was alive and free from recurrence after fourteen years, and another after three and a half years. In both these cases the radium had been used as an adjunct to partial cystectomy. He had had four cases of multiple papillomata treated by deep *x* rays, but the treatment did not seem to make the slightest difference. During the last eight months he had been treating suitable cases with the Chaoul apparatus; the exposures were roughly from forty-five to fifty minutes. He could only speak of the cystoscopic appearance of these cases after treatment. In two cases the ulcer had entirely healed, and in three other cases, in which he had used fairly extensive fulguration before the *x*-ray therapy, there was a large white slough. These patients had nothing like the pain which they suffered after radium treatment. His impression at the moment was that more good was likely to be done by direct contact treatment with *x* rays than by deep *x* rays. He also referred to the treatment of malignant disease of the testes, particularly of the seminoma type. This was extremely sensitive to deep *x* rays.

Mr. E. W. RICHES referred to the pre-operative irradiation of Wilms's tumours. These tumours were, fortunately, rare, and for that reason it might be worth while to recall the impressions of a solitary case. This was a small boy who had a large tumour. Some pre-operative *x*-ray therapy was given, with the result that the tumour shrank in size and

nephrectomy was then carried out. The vascularity was less and the fibrosis greater than one would expect. Mr. T. J. MILLIN referred to the value of using Steadman's suction pump to keep the bladder empty. There was virtually no cystalgia afterwards. Dr. E. S. Freshman described the treatment of a large hypernephroma by pre-operative *x* rays. It was three weeks or a month after the end of treatment before the patient was fit for the necessary operative measures.

Mr. R. OGIER WARD said that since 1927 he had treated seventy-two cases of bladder growths with radon seeds. Among the cases were twenty-one which he diagnosed as innocent papilloma, seven as papillary carcinoma, and forty-one as definitely carcinoma of the infiltrating type. A certain number of the seeds "misfired," but if they were put in through a panendoscope they could be placed in fairly good position, and certain growths would melt away under this treatment. The worst type of growth was the infiltrating one, but even in this regression could be brought about, and the method was not followed by any cystitis.

TRYPANOSOMIASIS IN SOME AFRICAN DEPENDENCIES

At a meeting of the Royal Society of Tropical Medicine and Hygiene on May 18 an address was given on certain aspects of trypanosomiasis in some African dependencies by Dr. H. M. O. LESTER, with the president, Lieutenant-Colonel S. P. JAMES, F.R.S., in the chair.

Dr. Lester said that although epidemic sleeping sickness might cause serious depopulation the occurrence of a few cases should not be regarded as a calamity. Provided there was adequate contact between the medical staff and the general population there was no fear of such wholesale devastations as occurred formerly. Mass treatment of itself would reduce an epidemic to reasonable proportions. Constant vigilance was necessary, but fear of fresh disasters should not lead to unnecessarily severe and irksome restrictions. At present the disease was fairly mild, though patches of virulent infection appeared. The proportion of severe nervous cases in Uganda, the Congo, and the Sudan was not much higher than in Nigeria. Control measures should not interfere with general development. The restriction and settlement of population in unsuitable areas might cause more damage through poor nutrition and famine than sleeping sickness itself would have done.

Most of Tanganyika Territory was infested with tsetse. Sleeping sickness was no longer serious, as the population of infected areas had been concentrated in special settlements. There were only 168 cases in 1937. Cattle trypanosomiasis was the important problem. The fly-free areas were overpopulated and overstocked. Soil impoverishment and erosion were increasing, and would continue to do so unless spread of tsetse was stopped and new areas reclaimed. A cheap and easy method of reclamation, to be used when required, was essential. In Uganda and the Sudan sleeping sickness was under control. The populations of the old epidemic areas had been moved to less dangerous regions. They were inspected regularly and cases treated. In both countries the restriction was causing overcrowding and soil impoverishment. It was hindering development and would have to be reconsidered. In Nigeria the disease was being controlled by mass treatment and the establishment of dispensaries, protective clearing by communal labour, and, as a last resource, the movement and concentration of population. In the last seven years 300,000 cases had been treated. In many of the main epidemic areas the infection rate was now a tenth of the old figure. In moving populations the object was to secure the maximum improvement and development and to try to make the new settlements demonstrations for the rest of the country. People were being helped to build model compounds, and villages were being laid out properly.

General Discussion

In opening the discussion Dr. A. J. R. O'BRIEN said that Dr. Lester had been in charge of sleeping sickness work in Nigeria for nearly ten years, and knew much about the economic side and the control of the disease. Money was limited and the health of the people had to be considered as a whole. In West Africa sleeping sickness remained a big problem, but in East Africa it now had ceased to worry the Administration. In East Africa MacLean had discovered that a population between ten and sixty per square mile proved the ideal population for the spread of sleeping sickness, and that under these conditions there was maximum contact between fly and man. On the basis of this view MacLean had concentrated the population in Tanganyika and had practically wiped out sleeping sickness in human beings there. Before the "Pax Britannica" there was no sleeping sickness in West Africa because the people lived in fairly large towns and villages, built walls around them, and cultivated the land in the immediate vicinity so that no tsetse could flourish there. But when the "Pax Britannica" came the people began to desert the towns and go into the country where tsetse existed; contact of the fly and man followed with spread of the disease. In East Africa there were no towns or villages except those that had been made since the Europeans went there: 90 per cent. lived in rural areas on little farms a hundred yards apart, affording ideal conditions for the spread of tsetse. Dr. Lester held that unless control methods were successful there was a population of 1,200,000 people who might possibly become infected. The history of tsetse in Tanganyika started really as *pallidipes* infection along the lake shore; people left to avoid the disease and retired into *morsitans* country, and *morsitans* became infective to both man and cattle. The natives then retired eastward, but the fly followed, driving man and cattle further back. Until recently the fly had been winning the battle, but now with scientific methods there was every reason to believe the fly would be conquered. In regard to the block system of Symes, much money had been wasted on such clearances, for to be effective it was necessary to begin at the source of the river and go down it.

Professor R. M. GORDON agreed on the need for co-operation between the veterinary, medical, and agricultural departments, and where there was adequate contact between the medical department and the general public there was no risk of epidemics of trypanosomiasis such as had occurred in the past. Vigilance, however, should always be maintained. Dr. Lester had naturally not referred to the Congo or Sierra Leone because in the past the problem of trypanosomiasis had not arisen there. Up to 1930 the published reports in the Congo suggested about fourteen cases per annum, but since then there had been a steady increase until 1937, when some 2,050 cases were diagnosed by gland puncture or blood examination. Undoubtedly there had been an alarming increase. Dr. Lester had referred to certain places in West Africa where there were innumerable thickets densely infested with *G. pallidipes* lying between streams, and pointed out that Symes's block system would not be applicable there. He (the speaker) would like to know the reason for its failure under such circumstances.

Dr. T. H. DAVEY confined his remarks to the east coast, and especially to *G. morsitans*, and said that if epidemics had been stayed it had been at the expense of abandoning land to the tsetse fly and deserting it for good. So far we could not deal effectively with this tsetse fly. There was a close association between game and *G. morsitans* and its near relations, such as *swynnertoni*. Even if we acquitted the wild game of harbouring human trypanosomiasis we could not acquit it of being the main supply of *G. morsitans*. If natives were allowed to hunt game around their villages they would drive away the game and with it the tsetse fly. At the present time game occupied a large portion of land where cattle and human beings could live in comfort.

Dr. C. C. CHESTERMAN asked Dr. Lester whether he considered that hand catching had replaced the various modifications of the Harris trap. It seemed easier in *pallidipes* areas to control man than fly or game, and he agreed about the need for restrictions being the least onerous possible. It caused

social unrest when waterways were closed and people taken a long way from hunting and fishing grounds and where women had to go a long way for firewood. The solution in *pallidipes* areas consists of increased facilities for medical examination and treatment; game played little part with this species of fly. Mr. LL. E. W. BEVAN, speaking from the veterinary point of view, said trypanosomiasis was perhaps the greatest plague of the animal world and included nagana, surra, dourine, and mal de caderas among others. Some 4,500,000 square miles of Africa were infested with tsetse fly. How was it going to be ever possible to swat the last fly in such an area? In his opinion chemotherapy was all-important.

Dr. LESTER, in reply, said the whole idea of concentrating population as a measure against *morsitans* originated with MacLean. In regard to Symes's work, provided one could put in block clearings to cut off flies from re-entering the free area it did not matter whether it was at the start of the stream, half-way down, or at the mouth. But it was much easier at the source of the stream because the bush started there, and there was no chance of flies coming in from the side. Expense was the difficulty. The Harris trap had been effective in certain parts of Africa, but against *palpalis*, *morsitans*, and *tachinoides* it had no great measure of success. It was more troublesome and more costly than catching flies by hand. Great progress was being made in sleeping sickness work in Africa, and there had been a tremendous decrease of infection in many areas. In regard to therapy, "antropol"—a British drug—was widely used in British territory; over 30,000 cases were treated last year. It was the same as Bayer 205.

BRITISH ORTHOPAEDIC ASSOCIATION

The spring meeting of the British Orthopaedic Association was held at the Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, on May 5 and 6 under the presidency of Mr. Naughton Dunn. A large number of members and their ladies attended the meeting, and a dinner was held at the Grosvenor Hotel, Chester. Among the distinguished guests were Dame Agnes Hunt and Dr. Delchef (who represented the Belgian Government and the Belgian Orthopaedic Association). The social programme included visits to places of architectural interest in and around Chester, to Powis Castle, and to Chirk Castle, where Lord and Lady Howard de Walden entertained the visitors at a sherry party. The scientific sessions were held at the hospital. They included demonstrations of patients under treatment by members of the visiting staff of the hospital, assisted by the resident medical officers. A most interesting feature was a conducted tour of the Derwen Cripple Training Centre, which adjoins and is associated with the hospital.

In his presidential address on some aspects of bone surgery Mr. NAUGHTON DUNN surveyed the measures adopted to secure bony union in ununited fractures and in diseased and damaged joints. As a substitute for bone grafting he advocated the subcortical exposure of the bone ends and a thorough refreshing, producing multiple chips with intact periosteal attachments. During the meeting a series of short papers were read.

Postural Function.—Mr. D. MCCREA AITKEN (London) gave an interesting account of some of his ideas on the postural function of the muscles of the lower limb. He emphasized the importance of these muscles in health and disease not only of the lower extremity but of the body as a whole. He stressed in particular how necessary and how valuable the movement of rotation was in all activities.

Fractures of the Radius.—Mr. R. C. MURRAY (Oswestry) presented a survey of 459 fractures of the head and neck of the radius treated at the Liverpool Royal Infirmary during the ten-year period 1927–37. The majority of the fractures appeared to have been caused by indirect violence, and they fell into six groups. Conservative treatment gave the best results in the majority of cases. Operative treatment ought to be reserved for fractures of the neck irreducible by manipulation, for the removal of a completely detached fragment displaced into the joint, for grossly comminuted fractures, and for certain depressed marginal fractures. As a rule complete excision of the head was preferable to partial removal.

Joint Tuberculosis.—Mr. G. T. PARTRIDGE (Chester) discussed the late results in forty-eight cases of tuberculous infection of the sacro-iliac joints, Mr. S. THOMPSON (Oswestry) the late results in twenty-seven cases of tuberculous arthritis of the shoulder-joint, and Mr. R. C. MURRAY (Oswestry) the late results in 322 cases of tuberculous arthritis of the knee-joint. This symposium represented the result of a follow-up study of patients treated in the Robert Jones and Agnes Hunt Orthopaedic Hospital in the period 1920 to 1934. About one-third of the patients with sacro-iliac disease died within four and a half years of the onset of the condition. The remainder were alive and for the most part well. The results following sound conservative treatment appeared to be as good and as lasting as the results in those cases in which an arthrodesis had finally been performed. Tuberculosis of the shoulder-joint appeared to be a disease with a favourable outlook, usually affecting young adults. There was a long history of vague pain, but usually treatment was not undertaken until an abscess appeared. The presence or absence of a sinus had an important bearing on the prognosis, whether the treatment was conservative or operative. Conservative treatment was advisable until the disease was healed, when an extra-articular arthrodesis was a valuable stabilizing procedure. Tuberculous arthritis of the knee occurred in about 11 per cent. of all cases of bone and joint tuberculosis treated in the hospital. Primary synovial disease progressed to involvement of bone in about 45 per cent. of cases, and on an average took about three years to do so. The focal articular type had a high mortality (22 per cent.) due to subsequent lesions elsewhere. In the majority of extra-articular lesions the prognosis was excellent. It was interesting to note that in tuberculous disease of the knee lengthening of the affected limb was twice as common as shortening.

Combined Bed Frame and Splint.—Professor E. W. HEY GROVES (Bristol) demonstrated an ingenious combined bed frame and splint for fractures of the lower limb. This consisted of a portable tubular frame resembling a Bradford frame. To it was attached an adjustable back-rest, and the mattress was partitioned to facilitate nursing. The object of the frame was to allow traction to be applied to both lower extremities with the patient in the sitting position. The traction need not be disturbed for transport, for *x*-ray investigation, or for such operative procedures as the introduction of a Smith-Petersen nail.

Colles's Fracture.—Mr. J. H. MAYER (London) described the recurrence of displacement following apparently successful reduction and adequate splintage of a Colles fracture. He attributed this redisplacement, which he said was seen in 50 per cent. of cases, to the frequent occurrence of a supination of the lower radial fragment, which was often not corrected during attempts at reduction. Forcible pronation of the distal fragment was an essential step in manipulative reduction, and should be maintained by including the wrist and elbow in the plaster. Sixty-three cases were reviewed and some experimental work was also presented.

RESEARCH ON TWINS

On June 8 Professor Freiherr von Verschuer of the University of Frankfort-on-Main delivered a lecture before the Royal Society on twin research from the time of Francis Galton to the present day. Galton, he said, was the founder of human hereditary biology and eugenics; he was also the first to recognize the importance of the method of twin research, which he employed in a paper published in 1875. Only during the last fifteen years, however, had twin research been carried out more extensively. This method served to dissociate the parts played by heredity and environment in the development of individual human properties. To determine

the identity of similar-sexed twins one generally employed nowadays the resemblance diagnosis, the reliability of which had been checked by parallel serological investigations. Only from the observations of a single chorion could the identity of twins be determined; twins with separate choria might or might not be identical. Identical twins were genetically identical persons. All differences between them were not hereditary.

Some interesting details of this twin research were illustrated in slides, showing the application of this method. Investigations on tuberculous twins were then described covering some ten years' researches with Diehl. An equal or approximately equal reaction to tuberculosis was shown by fifty-two out of eighty identical twin pairs, but by only thirty-one out of 125 ordinary twin pairs. In several cases identical twins, in spite of greatly different environment and years of separation, sickened and died simultaneously of the same form of tuberculosis. There could, therefore, be no doubt of the existence of an inherited disposition to tuberculosis, involving an abnormally great tendency to the disease and a lowered resistance during its course. Other extensive investigations on twins were being carried out in the author's institute of hereditary biology and eugenics. Unselected series of twins were compiled by extracting out of the clinical histories names and birth dates of patients suffering from a particular disease, and inquiring from the registry offices whether or not the affected person was a twin. A very large amount of material, however, was required to obtain a satisfactory twin series. Another way of arriving at an unselected series of twins was the compilation of all twins in a definite period and district. Such investigations had already cleared up the hereditary nature of numerous diseases and given new information on the development of man.

The Association of Industrial Medical Officers held its annual provincial meeting in York on May 19 and 20, at the invitation of Messrs. Rowntree and Co. Ltd. Miss E. P. Stevenson described how all prospective employees were examined by means of performance or written tests in order to determine their suitability for various jobs. The performance tests measured such abilities as hand and eye co-ordination, muscle control and co-ordination, speed and accuracy of perception, and finger dexterity. The written tests measured, among other things, the candidate's powers of comprehension, reasoning, and deduction. For apprenticeship to trades certain assembly tests were given in addition. Her department was not only concerned in vocational guidance, but took an active part in the selection and training of teachers and other supervisory staff, advising the management on problems concerned with labour, and undertaking a great deal of research work. Among the subjects being investigated, in co-operation with the Works Medical Department and the Industrial Health Research Board, was the question of "accident-proneness."

At the scientific meeting of the Zoological Society of London on Tuesday, June 13, at 5.30 p.m., there will be a symposium on modes of analysis of animal behaviour. A. F. Rawdon-Smith will discuss insect communication, the physiological approach to a problem in behaviour; J. Z. Young, the function of the central nervous system in animal motivation; J. A. Loeser, the non-existence of instinct; G. C. Drew, the function of punishment in learning; and S. Zuckerman, delayed reaction and memory in animal behaviour.

The Association of French Medical Motorists is celebrating this year its tenth anniversary. Its distinctive badge is already well known to the police and will shortly, it is hoped, receive official recognition. The association gives its members the benefits of legal advice, insurance, and purchasing facilities on special terms.

Local News

SCOTLAND

Glasgow Postgraduate Courses

A summer session for postgraduate teaching has again been arranged under the auspices of the Glasgow Post-Graduate Medical Association. The facilities will fall chiefly into three divisions: (*a*) general medical and surgical course, (*b*) intensive courses, and (*c*) clinical assistantships. At the end of June and in the middle of August whole-time courses, for which inclusive fees are charged, will be conducted in some of the general and special hospitals. The courses will include most of the subjects of interest to the general practitioner—the mornings being occupied with general medicine and surgical diagnosis and minor surgery, and the afternoons with special subjects in the special hospitals or departments of the general hospitals, two subjects being dealt with each afternoon. In a number of the institutions taking part in the work of the association clinical assistantships are available in the summer months as well as at other times. Full particulars may be had from the secretary, Glasgow Post-Graduate Medical Association, The University, Glasgow.

Civil Nursing Reserve

The establishment of a Civil Nursing Reserve in Scotland to function in the event of war is described in a circular recently issued by the Department of Health. The circular points out that in the event of war an additional 10,000 hospital beds will be brought into use in Scotland, 300 first-aid posts will be established, and about 400,000 people will be evacuated from dangerous to receiving areas. A large number of persons will therefore be needed to supplement the nursing staffs of hospitals, provide suitable trained persons for first-aid posts, and to supplement the district nursing service under the evacuation scheme. The Central Emergency Committee for the Nursing Profession has made arrangements for the recruitment, training, and organization of a civil nursing reserve for these purposes. This reserve will be divided into three groups: (1) trained nurses who have volunteered for service in war time; (2) assistant nurses who have volunteered for similar service; and (3) nursing auxiliaries. The Central Emergency Committee has arranged that the College of Nursing will maintain a register of all trained and assistant nurses in Scotland, which will give particulars of those who have volunteered and are available for service in war time. This register will be kept at the office of the College of Nursing, 40, Melville Street, Edinburgh, and in addition local registers of trained and assistant nurses will be kept by the local branches of the college. Trained and assistant nurses who are prepared to serve outside their own district will be registered as "mobile," and those who are able to volunteer only for a particular district will be registered as "immobile." The majority, however, of the civil nursing reserve will consist of nursing auxiliaries who are to be recruited and specially trained. These auxiliaries will be recruited in part from members of the St. Andrew's Ambulance Association and Red Cross detachments, but there will also be a large number of persons at present untrained who offer to undertake a course of training for the work. Such persons may, if they desire, join the St. Andrew's Ambulance Association or the British Red Cross Society, making their offer of service direct to the local branch of the association or of the society. Others will receive a course of training in first aid and nursing provided by the local committee set up by each local authority. For the latter purpose applications should be made to the local medical officer of health, the Central Emergency Committee, or the Women's Voluntary Services for Civil Defence. Each local authority will arrange

through the medical officer of health for a small selection committee to examine the women offering themselves for work as nursing auxiliaries when the forms of application have been completed. The age limits are 18 to 55, and the organization in counties or large burghs will be effected by the medical officer of health. Local authorities will in the first place pay the expenses incurred by local committees, and will recover these from the Exchequer grant under the Air Raid Precautions Act, 1937.

Edinburgh Sick Children's Hospital

At the annual meeting of contributors to the Royal Edinburgh Hospital for Sick Children it was stated that the ordinary expenditure had exceeded the ordinary income by £6,244, but this deficit had been met by legacies and special contributions. Lord Keith, in commending the claims of the hospital to the public, said no one would deny that the personal atmosphere of the voluntary system, with its voluntary support and voluntary administration, was very difficult if not impossible to attain in a State or municipal institution. He saw no reason why local authorities should not exercise more largely the powers they had to contribute to institutions which performed a great public service without management and control being vested in them. This, however, was a matter for the local authorities themselves. The report of the hospital shows that there was a deficit on the Muirfield Convalescent Home but a surplus of income on the Forteviot Convalescent Home. During the year the Medical Research Council established a unit for research in surgery, and Mr. W. C. Wilson has been appointed a whole-time member of the staff of the Council, the directors of the hospital retaining him in charge of twenty-five cots, an arrangement which is working satisfactorily. Additional accommodation has been obtained for the hospital's nurses, so as to allow a reduction in their working hours to forty-eight a week.

ENGLAND AND WALES

Joint Tuberculosis Council

At a meeting of the Joint Tuberculosis Council, held at the London School of Hygiene and Tropical Medicine on May 20, it was announced that Dr. R. R. Trail had been appointed by the British Medical Association to fill the vacancy on the Council occasioned by the death of Dr. F. W. Goodbody, and Sir Percival Hartley was welcomed as the representative of the National Association for the Prevention of Tuberculosis in place of Dr. F. J. C. Coutts, resigned. The Faculty of Radiologists accepted representation on the Council. A memorandum prepared by the secretary-general of the National Association for the Prevention of Tuberculosis, indicating a number of ways in which closer co-operation between the National Association, the Tuberculosis Association, and the Joint Council was possible, was considered, and it was agreed to appoint the chairman (Dr. S. Vere Pearson), Sir W. W. Jameson, Dr. E. Ward, Dr. G. Jessel (hon. treasurer), and Dr. J. B. McDougall (hon. secretary) to meet members of the other two organizations to discuss the matter further and report back. A discussion followed on the presentation of a memorandum on fellowships, grants, scholarships, etc., for investigation of problems concerning tuberculosis, presented by the honorary secretary. It was decided that the memorandum be referred to the Finance and Publicity Committee and that representation be made to the Medical Research Council, that it would be of assistance to research in tuberculosis if the membership of its Tuberculosis Committee had a larger representation of clinicians and of the tuberculosis service maintained by local authorities. Dr. G. Lissant Cox, in moving "That consideration be given to the recent report on tuberculosis in Wales," outlined some of the findings of the report and raised two questions in particular—whether certain of the defects found in Wales were not in fact repeated elsewhere in England, Scotland, and Ireland, and whether action should not have been taken by the Ministry of Health as the result of survey reports. Dr. D. A. Powell (Welsh National Memorial Association) gave a survey of the sequence of events leading up to the inquiry and detailed many of the difficulties confronting a number of local authorities in Wales in undertaking their legitimate responsibilities in prevention. The Council appointed Dr. D. A. Powell and Dr. Lissant Cox to consider the Welsh report in detail and report how far the lessons emanating from the inquiry may be applied to the country as a whole. The Council next gave attention to a motion by Dr. F. R. G. Heaf asking for a review of the definition of the term "quiescence" in tuberculosis. A general desire was expressed by members that other terms should also be re-defined, and a committee, with Dr. Heaf as convener, was appointed to revise the definition of a number of terms in common use.

Emergency Ambulance Service

The Minister of Health has in recent weeks been receiving from scheme-making authorities under the Air Raid Precautions Act their proposals for an emergency ambulance service to pick up casualties other than walking wounded and take them to hospitals or depots. There are 151 such authorities in England and Wales; 100 authorities had submitted their proposals by June 5, and forty-two schemes have already been approved. These schemes show where the ambulances will be stationed and how the vehicles and drivers and attendants will be allocated between the several posts, and include operational plans embracing arrangements for co-operation with neighbouring authorities. In general, ambulance posts and stretcher party depots are identical or close to each other, both services coming under the control of the medical officer of health. The vehicles used will be mainly adapted small vans of the commercial type. Simple stretcher-carrying fitments have been designed which the authorities will store in central depots. There is an adequate supply of suitable vans in most parts of the country. In a few areas a shortage has hitherto been experienced, but arrangements have now been made through the Ministry of Transport to meet this difficulty by the release of vans allocated for other emergency purposes.

The New Westminster Hospital

The new building of Westminster Hospital, to which in-patients were transferred on June 4, continues to excite a great deal of curiosity and admiration. Some hundreds of contributors have been entertained at the hospital in batches, and have inspected the various departments. The *Times Weekly Edition* of May 24 was largely devoted to an illustrated account of the hospital, in which the chairman of the Building Committee, the senior surgeon, the director of the laboratories, the resident medical officer of the radium department, and the dean of the school described their hopes and plans. The secretary of the hospital, Mr. C. M. Power, mentioned one or two matters of administration which would not occur to the casual visitor.

Every operation commands the services of at least twelve individuals—surgeons, nurses, dressers, and orderlies—not counting the engineering staff who feed the theatre with air, heat, light, oxygen, anaesthetics, and sterilizing steam, or the scrubbers who clean up afterwards. The director of laboratories, Dr. R. J. V. Pulvertaft, emphasized the vital importance of the laboratory in the working of the modern hospital. Within the experience of several still at work at Westminster a single small room sufficed for this purpose. But within the last ten years the number of tests has quadrupled and a new department of chemical pathology has been formed. The small hot cupboards used as bacteriological incubators are now a large hot room lined with shelves; the small ice-boxes are replaced by a refrigerator room. The primitive microscopes of early years have been replaced by

binoculars capable of critical magnification to the very limit permitted by the physical nature of light. In the *x*-ray diagnostic department at Westminster there are four examination suites, respectively for gastro-intestinal work, chest, bone and skull, urological and ante-natal, and small bone. The apparatus serving the gastro-intestinal room has a maximum output of 500 mA at 70,000 volts, and the unit provided for the chest room will deliver up to 1,000 mA, and can be used at voltages of from 40,000 to 115,000. For deep *x*-ray therapy the existing facilities have been greatly extended. Four tubes are available, two of them of the recently developed high output type designed to operate continuously at 30 mA each. The Chaoul therapy unit will operate at 4 mA, 60,000 volts. A detail or two may be added about the physiotherapy department. For treatment by diathermy the 6-metre short-wave generator has been adopted. Medical electricity in general is provided by three combined treatment tables for galvanism, ionization, faradism, and the sinusoidal current. Infra-red treatment is given by a five-element (230 watts each) apparatus, two infra-red tunnel baths, and other applicators. The ultra-violet section is also well furnished with five lamps, the majority being of the electronic discharge tube type. Abundant provision is made for various baths in the hydrotherapy section, and some novel mechanical devices for the movement of joints and muscles are to be found in the gymnastic section. It may be added that the whole of the physiotherapy equipment is British-made. There is much else of interest in the hospital, including the replanned radium unit.

Correspondence

Bipp Treatment of Wounds

SIR,—In some recent descriptions of, and recommendations concerning, the treatment of war wounds (such as those appearing in the *Journal*, April 15 and May 27, 1939) no reference is made to the bipp treatment of wounds, which was developed and advocated by the late Professor Rutherford Morison. I think that this is an omission to which attention should be directed.

While attached to the Northumberland War Hospital I had the opportunity of seeing Professor Morison carry out this method, and was associated with him in the treatment of a number of cases of severe war wounds. I remember quite vividly that I was strongly prejudiced against what at that time seemed (and was) a startling innovation, and I recall equally distinctly that Professor Morison's results convinced me that he was justified beyond all cavil in his advocacy of the technique which he had devised.

The method was adopted by Professor Morison's colleagues at the Northumberland War Hospital, and did receive some support elsewhere. I can recall that a memorandum on the bipp treatment was circulated in France in 1917. I cannot claim that I had special opportunity for wide observation of the practice followed in wound treatment, but from my experience, such as it was, I formed and still retain the impression that the bipp method did not at that time obtain the attention and recognition which it deserved. I am inclined to think that in the absence of actual demonstration, such as that given by Professor Morison himself, conversion to the use of such a procedure could, in 1917, have been possible only for surgeons of exceptionally open minds. In the preface to his little book *The Bipp Treatment of War Wounds* (1918) Professor Morison wrote:

"A long surgical experience may be of the greatest value, but in my case it was a handicap, for it took me a long time to realize the truth of what I saw—so opposed was it to all ordinary surgical canons."

In view of the more recent treatment of wounds by maggots, of the Winnett-Orr treatment, and of the plaster-of-Paris method lately employed in Spain, the bipp method cannot now be suspect on the ground of its being novel and heterodox; indeed, it may be considered by some to be out of date because reliance is placed on the use of an antiseptic. The following points, to which Professor Morison drew attention, should be noted (p. 55):

"It is obvious that my method of treatment should not be used as an emergency one at the front, and there are several reasons for this. The first, to which my attention was specially drawn by Surgeon General Sir George Makins, is the danger of gas gangrene following closure of fresh wounds. The second is that the technique must be carried out with such careful attention to detail as to take considerable time."

It is, however, stated on a later page (p. 65): "In civil cases I have had opportunities for using bipp in serious and large fresh wounds."

The bipp method was simple; it was clean and inoffensive; it was efficacious; wound closure was carried out in wounds which were more than twenty-four hours old; compound fractures were converted into closed fractures; dressings were infrequent; the patients were comfortable.—I am, etc.,

Newcastle-on-Tyne, May 29. WILLIAM MACKENZIE.

BIBLIOGRAPHY

Morison R. (1917). *British Medical Journal*, **2**, 503.
—— (1918). *J. R.A.M.C.*, **30**, 306.

Anaesthesia in War Time

SIR,—It is natural, I suppose, for anaesthetists just now to put forward schemes for war-time practice in their own specialty. Not much advantage, however, will accrue to anyone unless those who publish their ideas bear clearly in mind the distinction between what would be wanted in the forward and what in the rear zones of a battle area. In the latter there would presumably be little departure from good civil hospital practice. In the former, simplicity and portability of anaesthetic apparatus must be the guiding principle. The surgery to be catered for is limited to that necessary for enabling the patient to be safely transported further to the rear. Hypodermic injections and intravenous barbiturates, as suggested by Dr. Ronald Jarman (*Journal*, April 29, p. 896), would probably be the chief anaesthetic measures needed.

Dr. T. B. Jobson's apparatus described in your issue of May 27 (p. 1109) appears to me to be particularly adapted neither for the work of the field dressing station and the like nor for that of the base hospital. One cannot admit the merit of simplicity where valves, tubes, throat tubes, and packing play a part, and in a base hospital the apparatus would be in competition with more familiar and equally efficient means of giving ether. I tremble lest in the kindness of your heart by publishing Mr. Jobson's letter you may have let us in for a flood of descriptions of ingenious but irrelevant apparatus. Anaesthetists are more prone to invention than to judgment. Every anaesthetist (myself, alas! excepted) has invented a bit of apparatus, or has modified someone else's bit. Will you please encourage the authors of these things to add them to the collection of anaesthetic apparatus in the Royal College of Surgeons Museum, rather than try to foist them on their fellows or the R.A.M.C. authorities? To the former place Dr. Jobson's 2½-lb. contraption, tubes, packing, and all, would, I am sure, be a welcome addition.—I am, etc.,

London, W.1, June 2. J. BLOMFIELD.

Prevention and Treatment of Shock

SIR,—In the *Journal* of May 20 (p. 1053) Mr. N. L. M. Reader raises the question of using spinal analgesia as a therapeutic measure in shocked cases of lower limb injuries under war conditions. He suggests that it should be the earliest and most important act in first-aid treatment. Dr. E. A. E. Palmer (May 27, p. 1110) mentions a few difficulties which would bar the use of spinal block. Both writers are correct in what they say, but which advice should be taken?

My own experience in spinal analgesia supports Mr. Reader's main idea and is in agreement with the conclusions of the excellent experimental work on cats published four years ago by O'Shaughnessy and Slome. Nerve block not only tends to alleviate but it delays the progress of shock. This brake action may allow the body to regain its power of drawing on its own plentiful fluid, or to utilize fluid supplied from without. The patient, however, who is suffering from severe prolonged shock is apt to die when the spinal block is no longer present. I have never yet given a second spinal anaesthetic to these bad cases as a treatment.

Dr. Palmer has mentioned some of the possible difficulties of war-time spinal anaesthesia. There are many others requiring consideration which would render spinal block impracticable and unjustifiable under difficult working conditions. I would mention: (1) lumbar puncture asepsis; (2) lack of spinal anaesthetists with a wide knowledge and conversant with a controllable technique; (3) want of spinal analgesia of long duration and which in any case might require repeating (drugs of the novocain series would not be suitable); (4) after-care and transport of the patient; (5) possible manipulation of the patient for induction; and (6) too rapid a transfer of a patient who may appear fairly well while at rest.

I feel, therefore, that the value of spinal block in shock following traumatized lower limbs should not be lost sight of, but that obvious difficulties will not permit of its routine use as a first and most important measure in first-aid treatment. The wise will be content to use spinal block in the quiet of a well-equipped hospital theatre with team and efficient apparatus. A suitable occasion will no doubt arise, however, when time, place, equipment, and expert will all be together and an intrathecal nerve root block can be carried to a conclusion.—I am, etc.,

Torquay, May 28. W. ETHERINGTON-WILSON, F.R.C.S.

SIR,—In replying to Dr. E. A. E. Palmer (May 27, p. 1110) may I be allowed to elucidate the rationale of spinal anaesthesia a little more fully. It must be borne in mind to begin with that all the traumatized cats used in the experiments already quoted were being anaesthetized at the time the trauma was inflicted. Only in those animals in which the anaesthetic was spinal was the blood pressure maintained and shock averted. In the rest the blood pressure went down and down, and the animals quickly died. Blood transfusion and all other methods (except nerve block) were unable, except very temporarily, to avert the inevitable fall of blood pressure ending in death. In the light of this, intravenous barbiturates, which Dr. Palmer advocates—and this applies equally to all inhalational and intravenous anaesthetics—can be regarded as useless in warding off shock after severe trauma. Although the patient may be unconscious of pain the nervous barrage is still attacking the vital medullary centres, and death will ensue. Blood transfusion alone will not save these patients; it must be combined with spinal anaesthesia.

Now as to technique—and I have had a number of private inquiries on this matter. Dr. Palmer suggests that I might be interested in the length of the spinal canal, but I admit unblushingly that this is not so. I use a light anaesthetic—spinocain. Owing to its amylo-prolamin content it diffuses with difficulty. The maximum dose is 3 c.cm. Contrary to most urgent instructions I give it by choice with the patient sitting up, and make him lie down immediately afterwards. (For high operations, five minutes on the face. This floats the solution up to the fourth or fifth thoracic segment.) The anaesthetic is preceded by the ephedrine-novocain solution provided with the spinocain. The syringes are Luer-Lok, 2 c.cm. and 4 c.cm., and the needles Pitkin type 4 in., 20 gauge, with 45 degrees bevel. When 3 c.cm. of spinocain has been given it is quite safe to transport the patient in the lying-down position. In this position anaesthesia will normally reach to the level of the diaphragm. No complicated arrangements are necessary.

In discussing spinal anaesthesia the question of blood pressure invariably arises, and there is a prevalent impression that dangerously low levels may frequently be reached. I can assure the timid ones that these occasions are extremely rare, and it is just as common for the blood pressure to remain constant or to go up as to go down. It depends so much on factors removed altogether from the anaesthetic. The point raised is, "Are you to give a spinal anaesthetic to a shocked patient whose blood pressure is already dangerously low when the anaesthetic itself may lower it still further?" The answer is that if the patient is capable of recovering—for after a long period of nervous barrage vital centres are irreparably exhausted—then a spinal anaesthetic will raise his blood pressure and maintain it at a higher level, and this, combined with blood transfusion to replace his fluid loss, will give him his one and only chance. However, my plea is that these dangerously low levels should not be reached, and that seriously injured patients should have their spinal anaesthetic as a prophylactic measure and not as a forlorn hope.—I am, etc.,

London, S.W.19, May 27. N. L. M. READER.

Paterson's (so-called Plummer-Vinson) Syndrome

SIR,—In his sympathetic biographical note on the late Dr. D. R. Paterson in the *Journal* for June 3 (p. 1161) Mr. Robert D. Owen makes a reference to a paper of mine on the "Plummer-Vinson syndrome" which calls for further comment. There is no doubt that Dr. Paterson was the discoverer of the syndrome of upper dysphagia with anaemia. He described it in the *British Medical Journal* in 1906 and more fully in a number of the *Journal of Laryngology* in 1919, which also contained a paper by Brown Kelly on the same subject. In 1914 Plummer independently observed the condition, but, so far as I know, did not write about it, and Vinson, his colleague at the Mayo Clinic, published an article on the subject in 1922; both regarded it as hysterical in origin. In 1926 I described a case in the *Guy's Hospital Reports*, and showed that there was no justification for regarding it as hysterical. As I was familiar with Vinson's paper but had not seen Paterson's and Brown Kelly's I referred to it as the "Plummer-Vinson syndrome," a name which has become widely adopted both in Great Britain and in America. In his last paper on upper dysphagia in the *Journal of Laryngology* for February, 1937, Dr. Paterson mentions that in an article of mine published in 1934[1] I spoke about the "unfortunate name Plummer-Vinson

[1] Hurst, A. F. (1934). *J. Amer. med. Ass.*, **102**, 582.

syndrome—unfortunate because I subsequently discovered that excellent accounts of the condition had been published in 1919 by Paterson and by Brown Kelly." The disease should obviously be known as "Paterson's syndrome" if "upper dysphagia with anaemia" is regarded as too long a name.

In 1919 Paterson pointed out that this disease predisposes to epithelioma, a fact which is now well established, and the early recognition and treatment of Paterson's syndrome may be regarded as a true prophylaxis of cancer of the pharyngo-oesophageal junction. Probably the last letter Dr. Paterson ever wrote was one to me, in which he acknowledged a reference to his pioneer work on the subject in my article on cancer of the oesophagus in the *Lancet* for March 18.—I am, etc.,

ARTHUR F. HURST.

New Lodge Clinic, Windsor Forest, June 5.

Myomectomy in the Pregnant Uterus

SIR,—A reader of Dr. Rufus Thomas's article in the *Journal* of May 27 (p. 1085) might conclude from it that the best treatment of fibroids during pregnancy associated with severe pain was myomectomy. Severe pain with fibroids is nearly always due, in pregnancy, to red degeneration. Pain due to red degeneration usually responds to rest in bed and sedation, at first by morphine and later by milder drugs; the patient then goes to term without the risk of haemorrhage and of miscarriage involved in operation. Subsequently the fibroids diminish in size and may never require removal. The exact pathology of Dr. Thomas's cases is not given: he merely writes, "Each myoma had small areas of haemorrhage in the centre."

I do not understand why examination under anaesthesia should always be necessary when a fibroid is palpable. In the first place, the head may be deep in the pelvis at the thirty-seventh week, and this shows that there can be no pelvic fibroid. Secondly, it is notorious that fibroids which are low down in the uterus towards the end of pregnancy, preventing engagement of the head, frequently rise up during the last weeks, even in labour itself, and allow the head to sink and labour to proceed normally. In my view, only in the case of a cervical fibroid is it justifiable to decide on laparotomy before a trial of labour has shown that the fibroid or fibroids have not been drawn up.

I should have reacted to the history of Case II in a different way from Dr. Thomas. Because there was vaginal loss I should have thought: "This patient must not be operated on unless it is absolutely essential, for fear of precipitating the miscarriage which is threatening."—I am, etc.,

Leeds, May 27. ANDREW M. CLAYE.

Pelvic Disproportion

SIR,—I am sure Mr. L. N. Reece (May 27, p. 1112) will be interested in the following case of gross disproportion.

A primigravida aged 34 expected her confinement on May 25. She was seen at the thirty-sixth week, when the foetal head was found to be free and could not be fixed in the brim. Her height was 4 ft. 5 in. External measurements were: interspinous, 9½ inches; intercristal, 10 inches; external conjugate, 6½ inches. She was examined under an anaesthetic, but again the head could not be made to fix in the brim or to descend on to the vaginal fingers. The whole of the pelvic brim could be felt easily and the diagonal conjugate measured 3¾ inches. The ischial spines were not unduly prominent and the sacrospinous ligaments seemed normal in length. The outlet did not appear to be contracted.

X-ray pelvimetry, using Molloy's stereoscopic method, was done. The radiologist's report is as follows: "Single foetus present; vertex presentation; head has not engaged; left occipito-lateral; foetal spine on maternal left. Cephalometry: suboccipito-bregmatic diameter, 3.6 inches; biparietal diameter, 3.3 inches approximately. Brim of pelvis: antero-posterior, 3.1 inches; transverse, 5.12 inches; right and left oblique, 4.3 inches. Pelvic outlet: interischial spinous diameter, 4.77 inches. This is a gross degree of pelvic deformity and I do not think it possible for the head to pass through."

According to Caldwell and Molloy's classification this was a platypelloid pelvis. The incidence of this type is only 2 per cent. The patient was advised to have a Caesarean section. Even in gross degrees of pelvic contraction I allow labour to start before performing a lower segment operation. On May 22 labour started spontaneously, and almost immediately the vertex began to fix in the brim. So rapid was the labour that the woman was delivered at the end of four hours of a living 6 lb. 7 oz. baby by the normal route. The baby's skull was examined immediately after birth and there was not undue moulding to be found. The suboccipito-bregmatic measurement was 3¼ inches and the biparietal 3½ inches. The puerperium was normal.

If, as Dr. Reece suggests, an extended trial be given to induction of labour for pelvic disproportion, then I predict that this operation will be done unnecessarily on many patients and maternal mortality will rise. Comment on the above case is superfluous, except the reminder of *vis medicatrix naturae*.—I am, etc.,

London, W.1, May 30. W. C. W. NIXON.

Storage of Blood for Emergency

SIR,—Various methods have been advocated for the storage of human blood for use in transfusion. We have in this department made comparative tests of some of these methods in collaboration with Drs. Farmer and Yuill. So far our experiments are few in number, and the results no more than suggestive; but in view of the interest at present attached to the matter we feel that even in this form they may be of value to your readers.

The principal questions to which answers have been sought are: (*a*) How is the normal oxygen capacity of the blood best preserved? (*b*) What are the most favourable conditions for preventing haemolysis? (*c*) Can the bactericidal power of stored blood be artificially maintained or even augmented? In addition, certain other miscellaneous observations have been made on changes in blood during storage.

In so far as the first two questions are concerned the chief conditions varied have been (1) state of oxygenation and (2) nature and amount of anti-coagulant solution employed. The experiments have been carried out on blood obtained from eight normal volunteers, and the maximum duration of storage has been twenty-seven days; the temperature of storage has been about 2° C. throughout. Each sample of about 400 c.cm. of blood was drawn into the appropriate anti-coagulant fluid, and an aliquot portion was transferred to a 1/3-pint milk bottle fitted with an arrangement which permitted storage under 15 lb. pressure of nitrogen and periodic sampling without opening the bottle; the remainder of the blood was fully oxygenated and stored similarly under 15 lb. pressure of oxygen. With one exception, the subsamples of blood remained sterile throughout all the experiments.

The main conclusions from the chemical study are as follows. (1) In order to prevent delayed formation of small clots the final concentration of citrate in the stored

blood should be 0.35 per cent. (2) The state of oxygenation makes little or no difference to the keeping qualities of blood; oxygen capacity has been well maintained in all samples. (3) Dilution is highly advantageous in delaying haemolysis. (4) We can observe no improvement on addition of magnesium sulphate and potassium chloride to the anti-coagulant solution as in I.H.T.; there is a suggestion that addition of glucose to 0.1 per cent. final concentration may delay haemolysis somewhat, but we do not regard this point as securely established.

No significant effect of any of the variations in conditions has been observed on the viscosity or plasma *p*H of the stored blood, nor has the fragility of the erythrocytes towards mechanical shaking been affected by the mode of storage. The citrate content has shown no diminution. The possibility of the liberation of vasodilator substances from the blood during storage has been considered; we have not been able to detect any diffusible substances of this character in blood stored for more than four weeks.

As regards the third question, bactericidal power has been tested by mixing graded inocula of a virulent Group A *Str. pyogenes* with 1-c.cm. samples of blood, the mixtures being held at 37° C., and tested at two hours, one, two, four, and six days. Under these conditions no 1-c.cm. specimen of citrated blood was capable of killing streptococci in numbers as small as 5. But blood to which 0.05 to 0.06 per cent. sulphanilamide was added killed up to 500 cocci; bacteriostasis of inocula up to 5,000 was maintained for three days, after which free multiplication took place. Sulphanilamide conferred this degree of killing power on bloods stored for periods up to twenty-six days.

Sulphanilamide may be added to the blood before storage. In concentrations of 0.05 per cent. it had no deleterious effect on the blood, and there was no diminution in sulphanilamide content, as estimated by the usual methods, over a period of fifteen days. Cocci added to stored sulphanilamide blood neither died nor multiplied in fifteen days at 2° C., but 1,000 per c.cm. were killed if the chilled blood was incubated for two days at 37° C.

The nature of the diluent and the degree of oxygenation had no appreciable effect on bactericidal power. It follows that sulphanilamide in concentrations of 60 mg./100 c.cm. has no effect on *Str. pyogenes* in the cold, but at temperatures in which the cocci can multiply it has a pronounced bactericidal effect. The concentration is not high enough to be toxic for the recipient of the blood. It is of interest that sugar disappeared much more slowly from blood which had been stored with sulphanilamide than from normal blood.

As the result of these experiments it appears that the best treatment for blood which is to be stored is dilution with half its volume of saline containing 1.05 per cent. citrate, 0.3 per cent. glucose, and 0.15 per cent. sulphanilamide. The temperature of the storage should be 2°–4° C. Under these conditions we believe that blood can be kept in a satisfactory condition for periods up to fourteen days.

In a private discussion of this work two criticisms have been made: (1) prolonged contact with india-rubber bungs may have a deleterious effect on blood; (2) blood proteins may be modified by contact with sulphanilamide so as to become a sensitizing antigen. The blood in our experiments was stored in rubber-stoppered vessels, and so far as we could see did not suffer in any way from this procedure. As to the second point, we see no reason to suppose that a substance of the chemical constitution of sulphanilamide is likely to link with proteins in such a way as to modify their antigenic properties; moreover, the rarity with which symptoms possibly referable to specific hypersensitive states arise in sulphanilamide therapy is a confirmation of this view. We are indebted to Mr. W. H. G. Jessop for bleeding the volunteers.—We are, etc.,

C. R. HARINGTON.
A. A. MILES.

Department of Pathology, University College Hospital Medical School,
June 6.

Pitfalls in Chemotherapy

SIR,—Sir Adolphe Abrahams's recent letter concerning the new remedies and the care needed in their use prompts the following short notes of warning from our experiences as to the extra care and vigilance required when some of these modern remedies are used so as not to be unduly misled by dramatic disappearance of prominent signs and symptoms of illness; it can be said that this disappearance may be a source of grave danger. Compare the use of morphine in early appendicitis before the decision to operate is made. This danger is much greater if the patient is not being treated in hospital under the watchful eye of a thoroughly experienced sister, with carefully charted pulse and temperatures.

CASE I

A boy aged 5½ years was admitted into hospital having had a temperature of 102° F. with very slight tenderness and oedema over his right mastoid, slight earache, and a bulging red tympanum. This was incised and M & B 693 was started. By the third day temperature was down to normal, the ear discharging freely, the slight mastoid signs all gone. The child was quite happy, eating well, and with no pain. Five days later the evening temperature rose to 99.6° and remained at that level for ten days. There were no mastoid signs at all, still free discharge of pus from the meatus; no pain was complained of. One was entirely puzzled. Then the child got sleepy and his pulse rate was increased to over 100, but still no mastoid signs. On the pulse rate and drowsiness being considered as outweighing the importance of all other signs, the mastoid cells were opened up and found to be full of thick creamy pus and the bone all softened. He did exceedingly well.

Eight days later the temperature jumped suddenly one evening to 103° F. The child complained of toothache on the left side and the left tympanum was found to be red and bulging and was incised, pus being found. There were no real mastoid signs on this side, only very slight tenderness at the tip, and very slight visible oedema and no redness; pressure did not cause enough pain to make the child wince or cry. Two days later, although the temperature had dropped to 99° F., the pulse rate was keeping to 100–112 at times. No further mastoid signs were present, but it was thought advisable to operate on the left side in view of one's experiences on the other. Pus was found in the deep mastoid cells there also. It had been a pure pneumococcal infection. If the child had been at home and not in hospital the drowsiness and increased pulse rate would quite probably not have been noticed and the results possibly disastrous.

CASE II

A boy aged 11 years, after a slight injury to the lower end of his thigh, developed a collection of pus intramuscularly in the lower third and outer side. *X*-ray examination showed no signs of bone disease. The abscess was widely opened up and drained. Some area of bare bone was found but no evidence of any deeper mischief. He was put on to uleron, and the temperature came down to normal in four days. The boy was quite comfortable in every way and did not seem at all ill. For the next ten days the discharge continued, becoming more serous. There was no bone tenderness. He ate well and slept well. The evening temperature was slightly raised, but not more than one would expect from the wide area of the incision. His pulse was over-rapid. However, as he belonged to a family all of whom are nervy

and highly strung, it was thought reasonable that this was also in his case the explanation. As all the other signs were so favourable and he was sitting up and playing on the bed, it did not seem enough to justify further operation.

On the eighteenth day, however, the upper third of the femur was found to be very definitely thickened to a degree that could not be disregarded, even though his general condition was normal. Operation disclosed the medulla and shaft of the femur all disorganized with pus and sequestra forming. In this case, also, one feels that the remedy (uleron) had in some way prevented the appearance of the signs we were looking for. Tenderness, high temperature, malaise, signs of infection were all missing, and the rapid pulse was naturally enough explained otherwise.

The use of these recently discovered and powerful remedies requires not less, but even more, vigilance for fear any apparently contradictory signs may be dismissed (in error) as of little importance, because they do not agree with all the other major ones which may be favourable.—I am, etc.,

W. H. PALMER, M.B., B.S.Lond.

Hayle, Cornwall, May 19.

Sterilized Air

SIR,—Your issue of May 13 (p. 1007) has a further letter on this subject, so perhaps notes on technical methods of freeing rooms from dust may be of interest.

If the floors are kept wet, usually with a solution of glycerin to prevent drying, to which saponin or soap may be added, all dust, etc., will fall to the floor if the room is left undisturbed for a time; on the floor it is held and not disturbed if the air above it is disturbed. The highly polished floors of theatres are eminently suited to keeping dust in the air, as any slight movement will raise it up. Surely wet matting of some sort would be much better; no dust could be raised from it, and disinfection would be simple. Walls and shelves could be wetted too; shelves of wood would be better than those of glass, etc. Covers over the opening of vessels would keep them cleaner than stoppers, or nothing.

Linen gowns cause much dust, and might be replaced by some material like oiled silk; some of these are very pliable. Such gowns could be disinfected by immersion provided that it be remembered that the time factor is most important. Anyhow, if kept wetted with a solution of low surface tension they would be efficient if not quite sterile. For the head something after the style of bathing caps would be better, though it would be simple and cheap to make the whole thing in one piece—cap, mask, and gown. Instead of short rubber boots something like fishing trousers, right up to the hips, would reduce dust from friction of the trousers.

Another method is to pass steam into the air before using the room. This condenses on dust and bacteria (even on electrons); the globules fall to the floor, where everything is retained. Or the air is frozen, perhaps moistened first. This catches everything and dries the air. It is heated and conditioned after that, of course. Tissue culture methods teach us the value of having a shelf as low as possible over one's work. It catches dust and bacteria.

The supply of large amounts of air free from dust and germs is both simple and cheap; with absence of linen, damp floors, etc., there should be no dust. But an important step in this matter would be to employ one of the pieces of apparatus to measure and count the particles of dust and bacteria in the air. There are several of them. Only then can one be sure of data. When all is said and done, the greatest factor in controlling sepsis is the resistance of the body and tissues. Hence my suggestion that the air be heated and kept damp, so as to prevent local reduction of that factor of which we know so little. Anyone considering sprays, etc., should remember that the minuteness of the globule is of the utmost importance, as shown by Pickering some forty years ago, followed by Chick and Martin and others. The coefficient of disinfectants depends on this so much that one can make a "disinfectant" of high coefficient without any actual disinfectant at all. Fine suspensions adsorb bacteria.—I am, etc.,

Kingston Hill, Surrey, May 30. W. F. COOPER.

Vinesthene Anaesthetic Mixture

SIR,—I was very pleased to see that Dr. F. F. Cartwright has called attention to the valuable properties of vinesthene anaesthetic mixture (*Journal*, May 27, p. 1081). We have been using this mixture daily at the Wellhouse Hospital, Barnet, for some considerable time, and have been a little surprised that it is not more generally used.

I have not found that the mixture is unsuitable for abdominal work requiring profound anaesthesia, however, but have noticed that vomiting occurs after its use, although this is not usually of a severe type. Vinesthene mixture has proved of particular value in obstetric work, both for forceps delivery and for Caesarean operations. All our Caesarean operations are now done under the gas–oxygen–vinesthene mixture anaesthesia; and for forceps delivery in domiciliary midwifery vinesthene mixture appears to be the ideal anaesthetic. The eight-ounce bottles in which the mixture is sold are very convenient to place in the midwifery bag, and an ether dropper can be placed in the bottle and the mixture dropped on to an open mask. Sufficient relaxation is easily obtained for forceps extraction with very light anaesthesia, the induction is easy and smooth, and the patient readily recovers consciousness. I have never found the least deterioration of the mixture after the bottle has been opened; in fact it appears to be quite stable.

Dr. Cartwright does not mention the use of this anaesthetic for cerebral operations, but we have found it of the utmost value in emergency skull surgery. I am frequently called upon to anaesthetize patients brought to hospital with grave head injuries received in road accidents, and it is for this type of case that I have found vinesthene mixture with gas and oxygen so particularly useful.

To administer correctly and successfully gas–oxygen anaesthesia or cyclopropane–oxygen anaesthesia requires apparatus the cost of which is altogether beyond the means of the general practitioner anaesthetist, and I believe that in vinesthene mixture we have an anaesthetic which will enable the general practitioner to meet the requirements of his patients at a price economically practicable.—I am, etc.,

New Barnet, May 28. JOHN ELAM.

Medical Man-power in War

SIR,—My letter dated May 1 and published on May 13 seems to have provoked a brisk reaction. Most of the replies, however, are scarcely germane, and assume a lack of knowledge on my part which is scarcely justified.

For the benefit of those who are convinced of my ignorance I would state that, after six years' experience of the O.T.C. "pre-war" training, on the outbreak of war in 1914 I was mobilized from the Reserve to the Special Reserve, and commanded a company of the 6th Middlesex, though only a second lieutenant. I served with the 5th, 2nd, and 1st battalions of the Middlesex, commanding a platoon in the trenches at Armentières, where we were fifteen days up to our knees in water and not permitted to remove our boots and puttees. I sustained severe trench-foot, including areas of gangrene in both feet (apparently this vital peace-time medical officer training had made no provision for this). After discharge from hospital I was transferred to the R.A.M.C.,

helped to train a field ambulance, and went with it to France. Until 1917 I remained with a division, being medical officer in charge of stretcher bearers in several battles. I acted temporarily as M.O. to infantry battalions, to a brigade of field artillery, to the regimental train A.S.C., and while I was transport officer of a field ambulance I built several stables, dug-outs, and one road, and ran a laundry—not as an aid post, as Dr. Colin Cameron (*Journal*, May 27, p. 1107) appears to imagine, but as a laundry. Though I was commended for the efficient way in which this laundry was run, surely Dr. Cameron will agree that my occupation of such a post was rather wasting a doctor.

In 1917 I transferred to a C.C.S., and as a member of a mobile surgical team had ample opportunity for studying casualty clearing stations, and found, as most of us did, that the new army was more efficient than the Territorial—the reason being that the senior Territorial medical officers were not, as a rule, the type of men to be in command. The more efficient men, regarded as leaders by their colleagues, as a rule find with their uncertain hours and constant calls, and absence of any free time, that it is almost impossible to hold a responsible post in the medical service of the Territorial Army in peace time.

Turning to the letters in detail, I congratulate Dr. E. M. R. Frazer (May 27, p. 1109) on being the only correspondent to stick to the point. He has more or less converted me by his excellent letter. At the time I wrote it was expected that doctors would have to leave their practices for four months. It was announced shortly afterwards that they would only be called up for a month, so the hardship is not so great as we feared. Dr. Vincent Norman (p. 1109) rather missed my point. "What of the others?" leaves me cold. It does not impress me as common sense to call up a doctor unless he is going to receive or give training, and who is practising his profession with the Army, just because it has been found necessary to call up a lawyer who is going to practise gunnery and not law.

Major W. A. Ball (p. 1108) refers to a compact battalion and not to a formation composed of scattered groups. The doctor I have in mind is going to be stationed in the Isle of Wight, but most of his gun teams will be on the Hampshire coast. I think he has a better chance of meeting the men when they are not mobilized! Dr. Cameron assumes I am a general practitioner, which is incorrect, but I am glad to think I express their views. Most of his letter is not applicable to anti-aircraft units. In reply to Colonel J. B. Scott (p. 1107) I would be loath to be so cynical as to express agreement with the logical conclusion suggested, but pre-war medical training was not very impressive during the last war.

The medical officers of A.A. units certainly contemplated an annual training of a fortnight, but not four months, as was suggested when I wrote my letter. Had it been known that the training was to be one month only I would not have started this correspondence.—I am, etc.,

Hove, Sussex, May 31. H. J. MCCURRICH.

Chronic Mastitis

SIR,—Dr. Reginald S. Murley, in the *Journal* of May 20 (p. 1056), expresses disbelief in the view that nodular breasts can be due to chronic intestinal stasis. Dr. Murley should go to the trouble to inform himself of the facts. Obviously he has given no thought or study to the subject of stasis or he would not have fallen into so elementary a blunder as to deny that "constipation" can give rise to nodular breasts, or that mammary cancer can result from stasis because the breasts are "so distant" from the colon! At the risk of giving offence by expounding a very simple truth, let me explain that the evils of stasis are due, not directly to the constipation which is often one of its prominent features, but to the toxaemia which results from the multiplication of harmful microbes in the stagnant contents of the intestines. Thus the general circulation is vitiated and no organ or tissue, indeed no cell, however remote from the bowel, can possibly escape from the evil effects of the circulating poisons.

As regards the proof that the nodular condition of the breast is due to the toxaemia of stasis, it is a matter of everyday observation that one of the first indications of improvement procured by the successful treatment of stasis is the conversion of nodular breasts into smooth breasts. Before Dr. Murley again denies this, I beseech him to make the necessary study of stasis and to take careful notes of the effects of correct treatment.—I am, etc.,

London, W.1, May 30. ALFRED C. JORDAN.

*** This discussion cannot be prolonged here.—ED., *B.M.J.*

Universities and Colleges

UNIVERSITY OF OXFORD

In convocation on June 3 the degree of Doctor of Medicine (D.M.) was conferred on G. E. Godber of New College.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on May 28 the degrees of M.B., B.Ch. were conferred (by proxy) on R. D. S. Jack.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*Old Regulations:* *†J. A. S. Green, *†F. W. Gunz, *†G. R. Handy, *†R. D. C. Johnstone, *†R. S. Lawrie (University Medal), *†R. S. Murley, *†P. G. Todd. *Revised Regulations:* *†Eva G. Seaton. *Old Regulations:* S. C. Appleton, F. I. C. Apted, L. D. Arden, D. C. Arnott, G. N. Arthurs, D. W. R. Ashby, E. A. Atkinson, Mary Baker, T. H. Bassett, J. R. Belcher, J. M. C. Birt, A. N. Blades, T. P. Blanshard, F. M. Braines, W. E. W. Bridger, Margaret Brodigan, A. E. W. Brooker, Amelia E. Burch, K. A. Butler, Mercy S. Cam, Ruth C. Cassell, R. N. Cates, A. A. G. Clarke, R. P. Coldrey, G. B. Collyer, H. J. Cornelius, J. V. Crawford, H. D. Crosswell, A. P. Dale-Bussell, Peggy M. Dash, D. Ll. Davies, H. S. Davies, H. E. de Wardener, N. J. Dhondy, Ursula M. Dick, J. E. Dickson, D. M. Dunn, Marjorie O. Dunster, E. M. Elmhirst-Baxter, C. J. Evans, E. O. Evans, C. N. Faith, K. H. P. Flew, P. Forgacs, W. A. J. Fox, Gwenda M. Francis, P. A. Gardiner, J. W. Garraway, H. Greenburgh, S. Grossmark, L. B. Gunn, J. T. A. Hackett, L. A. T. Hamilton, D. H. Harrison, W. M. R. Henderson, J. Herbert-Burns, Rose Hertz, C. J. C. G. Hodson, F. G. Hollands, Mary C. Hopper, C. W. Horncastle, N. C. Horne, R. E. Horton, Beryl C. James, S. T. H. Jenkins, S. J. Johnson, R. G. H. Jones, J. A. Kennedy, C. W. Kesson, J. R. Kilpatrick, H. Kopelman, H. G. Langley, R. P. Lawson, H. A. Lee, V. D. Logue, N. L. McNeil, R. E. D. Markillie, I. J. Mathias, R. W. Maxwell, D. E. Meredith, J. R. Miles, Mary L. Mittell, P. W. Nathan, C. D. Needham, J. H. F. Norbury, S. P. S. Oswald, Stella A. Parikh, A. C. D. Parsons, Dorothy K. Paterson, J. H. Paterson, M. V. P. Peiris, Nancy Perry, G. L. Pett, A. B. Pollard, F. Post, C. E. Quin, M. Radzan, H. M. Rice, N. C. Rogers, R. Rubie, L. Saunders, R. S. Savidge, S. Shaw, D. G. Sheffield, Barbara J. Shorting, V. S. Shuttleworth, J. D. Sidey, J. H. Slayter, P. Smith, J. Sondheimer, D. Stafford-Clark, C. J. Stewart, P. D. Swinstead, W. N. Taylor, D. Tumrasvin, P. M. Ward, G. R. Waterman, J. Watkins-Pitchford, F. Whitwell, Edgeworth H. Williams, Edward H. Williams, B. D. R. Wilson, Elsie N. K. Wilson, H. Wolfsohn. *Revised Regulations:* Diana E. Barbour, Patience E. Barclay, Mary B. Bensusan-Butt, H. E. Bentley, R. A. Blair, Elizabeth Broadhead, T. H. W. Clarke, P. J. Cutler, J. V. Davies, A. R. Dearlove, W. Donkin, R. G. Evans, E. L. Frankel, P. Frankel, Kathleen M. French, L. V. Gimson, G. L. Haine, V. W. J. Hetreed, C. A. Jackson, G. M. Killpack, R. A. King, P. D. C. Kinmont, Dorothy M. S. Knott, Joan V. Laughlin, G. D. Lumb, L. Nancekievill, S. Oram, Catherine F. Pimm, R. G. Robinson, A. F. Russell, T. D. Spencer, W. M. Stephens, Katharine W. Stuart, W. F. T. Tatlow, Norah G. Taylor, J. Ll. Temple, Elsie M. Terry, R. D. Tonkin, Elizabeth Topley, F. G. Tucker, A. J. Walker,

A. F. Wallace. E. B. Wild. *Group I (Old Regulations):* I. H. Baum, G. Behr, J. A. Bowen-Jones, E. K. Brownrigg, M. M. A. Cader, J. R. Caldwell, P. T. Chopping, Patricia G. Cooper, G. S. Cross, A. R. Darlow, M. Dean, H. H. Dickson, A. J. Drew, G. R. Fearnley, Betty Fox, O. Garrod, Kathleen M. Harding, R. J. Harrison, W. R. L. Harrison, G. C. Haywood, W. H. James, M. A. K. Javid, F. H. Lee, G. Levy, G. C. Mackay, J. B. Mitchell, J. R. Odell, M. J. Pleydell, H. Pomerantz, H. I. H. Porcher, T. M. Ll. Price, H. V. Reeves, C. H. J. Rey, J. D. Rochford, Constance M. B. Shaw, H. D. Smith, M. R. J. Snelling, I. MacD. G. Stewart, R. A. R. Topping, L. H. Turner, H. D. Venning, E. Williams. *Group II (Old Regulations):* D. L. Bennett, Anna M. Berry, H. J. Bliss, A. D. Bone, A. G. N. Calder, J. Colover, C. McK. Craig, D. A. Ferguson, H. R. W. Franklin, J. B. Franklin, A. L. Frazer, R. C. Fuller, J. R. Hudson, J. F. Hughes, J. C. A. Innes, J. P. Irwin, G. C. A. Jackson, H. H. W. Jackson, D. C. R. R. Jenkins, J. B. Kershaw, A. H. Knight, B. Levin, J. S. Lillicrap, I. D. MacDonald, L. A. H. McShine, M. L. Mason, A. D. Newsholme, J. Ll. Penistan, F. L. Potter, J. R. E. Richardson, P. B. Riley, P. R. Stringer, C. K. Warrick, N. N. Wilson, C. W. B. Woodham. *Part I (Revised Regulations):* J. J. Ll. Ablett, R. H. Anthony, Ruth P. Armstrong, Elizabeth K. Baker, P. B. Banaji, Eileen Bayley, Margaret Bennett, G. Beven, R. F. Braithwaite, Winifred C. M. Bulkeley, Jean R. C. Burton-Brown, Isabella S. Chalmers, R. P. Crick, I. R. Davies, N. H. Desai, S. W. Dunkin, F. L. Dyson, P. McA. Elder, S. D. Elek, Enid J. Fair, G. R. Fisk, Lilias M. P. Gairdner, S. S. P. Gilder, F. J. Gillingham, C. W. Griffiths, Jean M. Holtzmann, R. V. Jones, R. R. Klein, D. C. Lewin, F. Luckett, H. F. Lunn, A. Mackler, B. U. Meyer, E. W. Miles, D. A. Miln, Margaretta D. Morrell, D. Munro-Ashman, C. W. Peck, A. S. S. Playfair, Constance J. Pollard, P. Pringle, Mary L. Rae, J. D. Randall, J. E. Richardson, E. Rosenbaum, R. J. Russell, P. T. Savage, J. C. Scott-Baker, D. W. Shields, G. F. Smart, B. J. D. Smith, S. C. F. Stephenson, Edith Taylor, Gwendolen M. G. Thomas, Helen P. Wainwright, Marguerite Watts, May D. Westerman, Elizabeth Whatley, J. F. Williams, B. W. Wood, H. Wormald, Helen M. Wright, Muriel C. Yates, W. J. Zorab. *Part II (Revised Regulations):* H. Auger, Rosalind S. Barclay, A. C. Bingold, M. W. Harvey, Jean M. Holtzmann, S. H. Lucas, A. S. Oscier, G. A. Robinson, E. Rosenbaum, R. W. B. Scutt, Margaret M. Shrubsall, Joyce R. Simmons, F. M. S. Smith, Alice Yates. *Part III (Revised Regulations):* Jean M. Drury-White, D. J. Paddison

[1] With honours. [2] Distinguished in Pathology. [3] Distinguished in Forensic Medicine and Hygiene. [4] Distinguished in Medicine. [5] Distinguished in Applied Pharmacology and Therapeutics. [6] Distinguished in Surgery. [7] Distinguished in Obstetrics and Gynaecology.

UNIVERSITY OF EDINBURGH

Mr. W. C. Wilson, M.B., F.R.C.S.Ed., has been appointed deputy director of the Wilkie Surgical Research Laboratory.

Medical Notes in Parliament

In the House of Lords on June 6 the access to Mountains Bill and the Charities (Fuel Allotments) Bill passed through Committee. The Water Undertakings Bill, which consolidates and amends certain enactments relating to water undertakings, was read a second time and referred to a Joint Committee of both Houses of Parliament.

Unemployment, Colonial Office administration, and the proposed Ministry of Supply were discussed in the House of Commons this week.

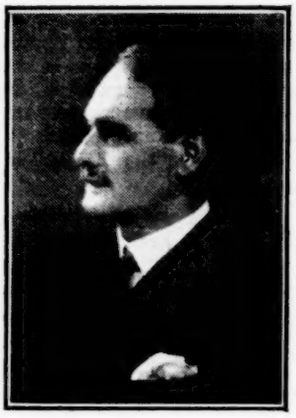
Mr. W. W. Wakefield gave notice to ask Sir Samuel Hoare on June 8 whether his attention had been drawn to a case heard in Dublin police court on May 25 indicating that a company with offices in London and Dublin had taken advantage of the provisions of the poisons legislation of Eire to sell freely to the public of Great Britain dangerous drugs, the sale of which was strictly controlled in this country. Mr. Wakefield also desired to ask what steps Sir Samuel proposed to deal with this abuse.

Amendments have been tabled by medical M.P.s and others for the deletion or amendment of Clause 7 in the Finance Bill, whereby the Medicine Stamp Duty is repealed. A conference of the M.P.s responsible for these amendments was proposed for June 7, with the object of concentrating on one proposal. The subject cannot be debated in the House of Commons until the committee stage of the Finance Bill, which may not be taken for three weeks. Meanwhile many requests for continuance of the duty are received by M.P.s from constituents who are pharmacists.

Obituary

F. W. ELLIS, M.D., F.R.C.S.

Dr. Frederick William Ellis of Edgbaston, who died on May 27 at the age of 63, had been medical superintendent of the Dudley Road Hospital, Birmingham, for the past twenty-six years. A native of Hayle, Cornwall, he was educated at Newton College and the University of Aberdeen, where he graduated M.B., Ch.B. in 1898 and proceeded to the M.D., with commendation, in 1907, having already taken the diploma of F.R.C.S.Eng. In 1909 he went to Birmingham as superintendent of Selly Oak Hospital, and in 1913 was appointed chief medical officer to the Birmingham Union. At that time the Dudley Road Hospital was known as the Birmingham Workhouse Infirmary. During the war the institution was taken over for military purposes, and Dr. Ellis served as commanding officer, with the title of Administrator, of the 2/1st Southern General Hospital R.A.M.C.T. After the hospital had reverted to civil status Dr. Ellis resumed his classification scheme for treating the chronic sick and providing for the accommodation of the acutely ill poor, and under his administration, with the active support of the Board of Guardians, "Dudley Road" became a model on which municipal hospitals were established throughout the country. Dr. Ellis had been a member of the Birmingham Central Division of the British Medical Association for the past twenty-eight years, and had filled the presidential chair of the Medical Superintendents' Society and of the clinical and pathological section of the Birmingham Branch of the B.M.A.



By the death of Dr. F. W. Ellis (writes a colleague) the municipal hospital and public assistance medical service loses its most outstanding personality and his numerous friends mourn the loss of one whose kindness and sympathy, courage and determination were always an inspiration. To Dr. Ellis, Birmingham owes the present position of its municipal hospital services. It was his vision that first established in Dudley Road Hospital the method of staffing acute general municipal hospitals with whole-time physicians and surgeons of consultant rank. He entered the Poor Law Service in 1904, and in 1909 was appointed medical officer to Selly Oak Infirmary (now Selly Oak Hospital) and Selly Oak House (now Selly Oak Infirmary). It is here that Dr. Ellis's organizing ability really became recognized. These institutions were calling out for revolutionary changes, and, due to his untiring efforts, slowly but surely these were made. His devoted enthusiasm for his work and his extraordinary patience overcame all obstacles. On the formation of the Birmingham Union, Dr. Ellis, at the age of 37, was the natural choice from a distinguished list of highly qualified candidates in 1913 for the appointment of chief medical officer to the Birmingham Union and chief medical officer at Dudley Road Hospital and Birmingham Infirmary. Dudley Road Hospital is an example of his planning and foresight, and it is sad

to think that he has not lived to see the completion of his schemes. He was always most actively interested in the welfare of nurses, their conditions of service, and the development of their profession. During the latter years of his life he devoted his great gifts and much of his time to schemes for developing better nursing services for the chronic sick. His unique knowledge enabled him to give valuable assistance to the Interdepartmental Committee dealing with nursing. All those who came in contact with Dr. Ellis were struck with his extraordinary ability combined with great personal charm.

A. BOYCE BARROW, F.R.C.S.

Consulting Surgeon, King's College Hospital

Mr. A. Boyce Barrow died in hospital on May 30 from injuries received in a motoring accident, at the age of 92. After a long career in the practice and teaching of surgery he retired to Writtle, in Essex, and devoted much of his time to horse-breeding.

Born in 1847, Albert Boyce Barrow was a distinguished student of the Medical Faculty of King's College; he qualified in 1873, then served as house-surgeon to King's College Hospital, and in 1875 succeeded William Rose as Sambrooke surgical registrar, and obtained the F.R.C.S. diploma. In 1886 he was appointed assistant surgeon to King's and teacher of practical surgery, having already served as pathological registrar; in 1891 he became teacher of operative surgery, and in 1893 was promoted full surgeon. On his retirement from the hospital staff in 1912 Barrow was elected consulting surgeon and a Fellow of King's College, London. At one time he had been assistant surgeon to the Westminster Hospital, and later surgeon to the Royal Free Hospital. He was a member of the British Medical Association from 1880 to 1917. Dr. Willoughby Lyle, in *King's and Some King's Men*, records that Barrow had a profound knowledge of veterinary surgery, and in the days when he practised in the neighbourhood of Harley Street no West End medical man of repute thought of buying a horse for his carriage without first seeking Barrow's practical advice.

Dr. G. de Bec Turtle writes:

The sudden death of Albert Boyce Barrow, as a result of a motor accident, removes a well-known figure of the surgical world of forty to fifty years ago. As an operating surgeon of the old school he was first class, inclined to be slow and deliberate but paying such care to every minute detail that his results were invariably good. He was resourceful and never seemed at a loss in any surgical procedure or emergency. He had a particular leaning to the study of proctology, and Barrow may justly be said to have been one of the first to try to make this a special branch of surgery. As a teacher, his rather slow and deliberate way of talking did not attract the junior men, but the more senior students, and especially those preparing for the higher surgical examinations, were quick to recognize his capacity in this respect, and his ward rounds often resembled a small final fellowship class.

Barrow was a fine upstanding figure of a man, immaculate in dress and appearance, extremely popular with his house-surgeons and dressers, generous and hospitable to a degree. There was another side to his character—his absolute love and devotion to animals, especially horses. Born in Newmarket, he early acquired a profound knowledge of veterinary surgery. When still comparatively young he acquired a small farm at Blackmore in Essex, where he began to devote some of his time to the breeding of race-horses. Later, he moved to a larger property, near Writtle, and there continued his hobby on a much wider scale. One of his most celebrated sires was Common, who won the Derby in 1891. Probably his most successful horse in training was Prospect, who won some fine steeplechases and but for an accident would have figured in the Grand National. The number of his stock at times exceeded sixty, and, as one might have expected, he was an amazingly good judge of thoroughbreds, being able to tell quite early (often before they had been broken or tried) whether they would ever gallop fast enough to win a race. He remained wonderfully active, even after his ninetieth year, and spent his days walking round his fields and visiting his animals. It almost goes without saying that he was an accomplished horseman, and in his younger days hunted with the foxhound packs in his vicinity. On the day of his accident he had been to Northolt to see a horse of his own breeding, Beguiled, racing and running a very good second in the first race of the day. Barrow remained a bachelor and had naturally outlived all his family, but to his two old retainers (who had been with him over fifty years), his stud groom and his housekeeper, we should like to express our sympathy in the loss of such a fine and lovable character.

"H. S. 1905" writes:

I should like to be allowed to pay a small tribute to the memory of Mr. Boyce Barrow, most lovable of men. None of his house-surgeons or dressers are likely ever to forget his wonderful skill and patience, his old-world courtesy, his delightful teaching methods, and his extraordinary generosity. Those in-and-out parties to his staff, often held at the Reform Club, live vividly in my memory. I quite recently made, as it were, a pilgrimage to Stud Farm. His horses now seemed to have taken the place of students, and the affection between them was beautiful to see. He wore gloves, I remember, and explained that, although over 90, he still liked to keep his hands as a surgeon should, in case an emergency call might come. And, indeed, he was still being consulted. "Eliza," whom hundreds must remember at Welbeck Street, was with him still, and her chief trouble seemed to be that she could not get him to discard the old jacket, nibbled to tatters by the horses he loved. We shall not see his like again.

CHARLES HORACE MAYO

Mr. A. H. McIndoe sends the following tribute supplementing the appreciations published last week at page 1159 and page 1145.

There will be many scattered throughout the world who will be especially grieved at the death of Charles Horace Mayo. Even though they knew of his failing health during the past few years the end comes with a sense of shock and as a personal loss. These men, former assistants and associates, were privileged to work in intimate contact with one of the most beloved surgical personalities of all time. By them he will always be affectionately remembered as "Dr. Charlie," and time will not dim the admiration and respect in which they hold him nor decrease the stature of the man himself. By them he was known not so much as the co-founder of the greatest surgical clinic the world has seen but as the perfect surgical chief. Modest, kindly, generous, witty, shrewdly observant of every aspect of life, he was a constant joy to those who delighted to serve him. Few there were who after five minutes' conversation did not fall beneath the spell of those twinkling eyes set in a half-serious, half-humorous face, of the quiet voice with characteristic dry tang, and the head cocked a little on one side. Stories about him are endless, and all his assistants will remember and treasure his amusing comments and observations on life and medicine, during ward rounds or in the operating theatre. His method of expression was unforgettable. He presented facts and figures in forthright manner with apt allusions and illustrations drawn from natural history and comparative anatomy, sometimes germane to the point under discussion, sometimes not.

He illuminated his picture with flashes of dry humour which kept his audience in a bubble of anticipation. During the morning's work of anything from ten to fifteen major cases he might discuss the number of nails and match-heads, the weight of charcoal and gunpowder which could be made from the constituents of the human body; he might philosophize about the gall-bladder of the pocket gopher, the pineal eye of the tuatara lizard, the galls on his oak trees, the tuberculous lesions of turkeys' livers, or a hundred other odd subjects, and between these divagations introduce sound clinical teaching drawn from the accumulated wisdom of his vast experience. Those who listened year by year fascinated by his extraordinary discourse never knew what curious information his wide reading and shrewd observation would bring to light.

As an operator Charles Mayo was rapid, dextrous, and direct, bold when necessary, conservative when possible, always gentle. He was difficult to assist, for, contrary to the usual clinic practice, he did not try to standardize his technique. He was forever trying new methods, unexpected approaches to difficult problems, variations in routine which were not easy to anticipate. "Dr. Will" thought that "Dr. Charlie" would have made a brilliant plastic surgeon, and indeed he loved anything of a constructive nature. He never ragged his assistants, and was as unfailingly kind to them at the operating table as he was outside the theatre. I can vividly remember my first nervous clumsiness as his assistant when he suddenly interrupted the curious mixture of half scientific jargon and half popular medical lore with which he delighted his crowded theatre to whisper in my ear: "You're doing fine; so long as you don't drop the bits on the floor I don't mind." Equally well can I remember the last sad day in 1929 on which he operated—a gastric resection interrupted by a severe retinal haemorrhage. The day has a particular significance, for in the adjoining theatre the next operation was to witness his own son's first day as assistant to his famous father. This was a ceremony to be watched with interest and appreciation by the whole clinic, and was keenly anticipated by father and son. It never took place. How well the son is following in the father's footsteps is evident to anyone who visits the clinic to-day. As a clinician Charles Mayo was without peer. His diagnostic ability and uncanny surgical judgment were based on vast experience, careful observation, and scrupulous physical examination. It was rare to find the laboratory findings upsetting his diagnosis.

Many have speculated on the reasons for the amazing growth and success of the Mayo Clinic. The real story has yet to be told, and when it is it will revolve round the personalities of these two great Americans. No true estimate of Charles Mayo's character and position can be made without considering that of his equally famous brother. These two men were complementary to an amazing degree. Each was incomplete without the other. And now death breaks at last the David and Jonathan partnership which for forty years has exerted a more profound influence on American medicine, and probably on world medicine, than any other single factor in modern times. The romantic story of these men, sons of a country doctor in the pioneering background of the Middle West, and of the vast organization they have created should surely make a biographer's mouth water. Let us hope its dramatic quality will not be missed. The influence of this institution has not come through outstanding surgical or medical discoveries. It has flowed directly from the revolutionary conception of William and Charles Mayo that modern medicine demands not an alteration in the individualistic approach of the patient to the doctor or the doctor to the patient but an organization of medical men which brings to the service of the patient all known facilities for efficient diagnosis and treatment. In the Mayo Clinic the doctor still consults with his patient within the quiet walls of his examining room, just as every doctor does the world over, but he does so with all the diagnostic aid of the clinic within his easy grasp. Immediate answers to doubtful points are available. He can utilize the experience of hundreds of specialists in a moment. He lives in a medical world where every human fallible factor has been so far as possible eliminated. The system is as fool-proof as human ingenuity can make it. Nevertheless the essential patient–doctor relationship remains undisturbed: there still must exist confidence, trust, and faith between them. There are few hospitals to-day in any civilized country which have not been in some way influenced by the experience of this great institution.

It would be easy for a machine of this type to become sterile and lifeless. The Mayo Clinic was never that. Charles Mayo was its soul. He was the humanizing element in the organization. More than anyone he was responsible for the most amazing thing of all about the Mayo Clinic—the fact that five hundred members of the most highly individualistic profession in the world could be induced to live and work together in a small town on the edge of nowhere, and like it! He it was who established the tradition which enables so many men distinguished in their own particular fields to work in peace and harmony for common ideals. So firmly is it established that it will endure even though he has passed on. This same integrative quality found expression in an even wider sphere. Charles Mayo had a great flair for the interpretation of medical knowledge to the lay public. Though he was perfectly at home with the great he never lost that common touch which enabled him to talk to the most humble in terms which could be understood and appreciated. As a result he took a deep interest in public health and in the welfare of the community. He battled fiercely for anything which made his country a better place to live in. In this usually dangerous field for medical men in which the Press must play a part he was equally successful. His news value was enormous, but he never offended his colleagues or antagonized the Press. He was honoured by countless universities and scientific bodies, but these distinctions he accepted merely in so far as they honoured his colleagues and the Mayo Clinic as a whole. He regarded himself simply as one member of the institution which by accident bore his name. This was typical of his whole unselfish life.

DONALD ROSE PATERSON, M.D.

Dr. R. Armstrong, General Superintendent and Secretary of the Cardiff Royal Infirmary, sends the following appreciation:

Friends of the Cardiff Royal Infirmary regret the passing of Dr. Donald Rose Paterson, who was associated with the hospital and its work for so many years. He came to Cardiff from his native Inverness in 1884, and had thus been a member of the staff in varying capacities for over half a century. It must be exceptional for any one man to have served an institution so long. The Infirmary was founded in 1837, so Dr. Paterson had been connected with it for more than half its existence. The clinical aspects of his work are adequately dealt with by his colleagues, but I wish to stress his unfailing interest in the administration of the hospital. For many years he was a member of the Board of Management, of the Council, of both House and Finance Committees, and, in particular, he was chairman of the Nursing Committee since it was re-established in 1927. His wide variety of interests made him a most valued member of any committee, and his wise judgment was frequently sought and willingly given. In addition to his activities on the committees already mentioned, he was very appropriately made chairman of the Centenary Executive Committee, and in that capacity did valuable work. He took upon himself the task of writing up the history of the Infirmary which was embodied in the Centenary Appeal, and his long association rendered that history invaluable by virtue of its accuracy and interest. In committee his grasp of essential details was really remarkable, and he could always be relied upon to abstract the essentials of memoranda and reports. When presiding he was wise and tolerant, and his excellent memory and long experience made him the perfect chairman when difficult problems were under discussion. He took the keenest possible interest in all questions relating to nursing, not only at the Infirmary but also in connexion with the College of Nursing, of which he was a member of council,

and he invariably presided at the annual function of the local branch. The Queen's Institute of Nursing was also fortunate in having him as a member of its council.

His very enthusiasm for the administrative side of hospital work must have been in some measure responsible for the fatal seizure which attacked him on Tuesday, May 9. He had presided at a busy meeting of the Nursing Committee and remained for the meeting of the House Committee, and as a simple example of his breadth of outlook one may quote what were almost his last words. A request from a local county council had been made to afford facilities for the training of women voluntary ambulance drivers, and while some members of the committee were not in favour of granting it, his actual words were, "I think we should be sympathetic to this request." A few minutes later he was struck down by a cerebral thrombosis within the precincts of the Infirmary and never spoke again. He was admitted immediately to a ward, and retained consciousness almost until the fatal termination a fortnight later. He was throughout his long life a practical idealist and will serve as an example to those who follow him. The Royal Infirmary, his colleagues both professional and lay, and the many patients he treated will long remember the great work he did for humanity.

F. SWINFORD EDWARDS, F.R.C.S.

Consulting Surgeon, West London Hospital

Mr. Frederick Swinford Edwards, consulting surgeon to the West London, St. Mark's, and St. Peter's Hospitals, who died on May 29 at the age of 86, was at one time well known for his work and writings on rectal and urinary surgery. The eldest son of Lewis F. Edwards, he was born in Paddington on January 17, 1853, and from Dulwich College went to St. Bartholomew's Hospital, where he won junior and senior prizes in anatomy and became house-surgeon, demonstrator of anatomy, and demonstrator of operative surgery. He qualified in 1875, and became a Fellow of the Royal College of Surgeons of England in 1878. He was elected assistant surgeon to the West London Hospital in 1880, and joined the staff of St. Peter's Hospital for Stone in 1881, and of St. Mark's Hospital for Rectal Diseases in 1884. Mr. Swinford Edwards was an honorary member of the French Association d'Urologie and of the American Proctological Society, a member of the Association Internationale d'Urologie, and past-president of the West London Medico-Chirurgical Society and of the Subsection of Proctology of the Royal Society of Medicine. His book on *Diseases of the Rectum, Anus, and Sigmoid Colon* reached a third edition in 1908, and he also wrote the section on examinations of the bladder and urethra in *Quain's Dictionary of Medicine*, and on operations upon the rectum and anus in *Burghard's System of Operative Surgery*. He joined the British Medical Association in 1880 and remained a member until his retirement from active practice.

JAMES D. GILRUTH, M.D., F.R.C.P.ED.

The death took place on May 25 at Arbroath Infirmary of Dr. James Davie Gilruth, who for thirty-seven years practised in Arbroath, and who, after his retirement in 1934, had lived in Edinburgh and at Carnoustie. Dr. Gilruth was a prominent member of the medical profession in the county of Angus. He was a native of Arbroath, and after graduating M.A. at Edinburgh in 1892 and M.B., C.M. in 1895, practised for a time in Morayshire. In 1897 he took up practice in Arbroath, where he later became surgeon to Arbroath Infirmary. He joined the Royal College of Physicians of Edinburgh as a Member in 1923, and proceeded to the Fellowship in 1926. In addition to a busy professional life he held a number of public appointments in Arbroath, and he interested himself greatly in all that concerned the local medical profession. He had been a member of the British Medical Association since 1896, and was president of the Dundee Branch in 1934–5. He was also president of the Forfarshire Medical Association. He was a keen golfer, and wrote a history of Arbroath golf course published in 1909. Dr. Gilruth was also greatly interested in antiquarian subjects. He became a Fellow of the Society of Antiquaries of Scotland in 1922, and was founder and president of a local antiquarian society in Arbroath. He had made himself a recognized authority on the history and antiquities of Angus and Mearns, and in 1936 he was appointed Alexander Black Lecturer by the Royal College of Physicians of Edinburgh. Among his other interests was the local Burns Club, which he was instrumental in reviving in 1909, and of which he acted as president for a time. He also founded an operatic society in Arbroath. Dr. Gilruth is survived by a widow and grown-up family.

Dr. ROBERT BLEASDALE, who died recently at Manchester Royal Infirmary, had been a member of the British Medical Association for forty years, and was chairman of the Ashton-under-Lyne Division in 1918. Born at Hindley, near Wigan, in November, 1874, he was educated at Hindley Grammar School and Owens College, Manchester, and graduated M.B., Ch.B.Vict. in 1896. After serving as house-surgeon at the Southport Infirmary Dr. Robert Bleasdale settled down in practice at Ashton forty-two years ago, and in 1928 was joined in partnership by his son, Dr. Philip Bleasdale. For many years he took a keen interest in the work of the St. John Ambulance Brigade and conducted classes for the local corps. He had been president of the Ashton and District Sick Nursing Association, and took a leading part in making its work known throughout the neighbourhood. During the war he was honorary physician to the Lake Hospital, and served on a medical board. By his death the local medical profession and many organizations in the town lose a man of outstanding personality.

The death occurred recently at his residence, Broughshane, Ballymena, Co. Antrim, of Dr. JAMES MCMASTER. He was a native of the area, and received his medical education at Queen's College, Belfast, qualifying in the Royal University of Ireland in 1886 and obtaining the degree of Master of Surgery two years later. After practising for some years in England he returned to Ireland, and in 1897 was appointed dispensary medical officer of Broughshane, a position he held until he retired in 1932, when he was succeeded by his son. Dr. McMaster was well known throughout Antrim, not only for his professional standing but also for his interest in public affairs. He was held in high regard by his patients, and was looked to for counsel and advice on many occasions. His passing removes one who was beloved by all who knew him, and to his wife, son, and daughter sincere sympathy is extended.

All medical men who from time to time gave evidence in the City Coroner's Court, and all lawyers who practised there, will regret the loss of the coroner, Mr. R. J. FRANCIS DANFORD THOMAS. Those who knew him will remember him as a loyal and warm-hearted man who was heavily handicapped by circumstance, and whose very humanity led him to accept handicaps which he might perhaps have declined and without which he might have become apparently more successful in life than he was. His father was a coroner—Dr. George Danford Thomas—and towards the end of his life became a chronic invalid. Francis chose to attend to his sick father rather than to his Bar practice, which might have made him eminent, for he was very gifted. Moreover, he never married, and in the

great war, at an age when he might well have been excused active service, he fought in the trenches with the London Regiment and came out with an incurably weakened heart. He had been deputy coroner of the City of London since 1902, having been called to the Bar by the Middle Temple in 1900, and after the war he went back to his duties. In 1920 he was also made deputy coroner of the Tower. He was president of the Coroners' Society of England and Wales in 1929, and afterwards its secretary, and became city coroner in 1932. He was noted for the care he always took to understand the medical evidence, and witnesses in his court had cause to thank him for his unfailing courtesy and his patience with the inexperienced.

We regret to record the death on May 5 of Dr. GEORGE HERBERT ROSE HOLDEN of Reading after an illness of more than a year. Born in Presteign, Radnorshire, in 1864, he received his early education at Sherborne School and Caius College, Cambridge, whence he went to St. Bartholomew's Hospital, and qualified M.R.C.S., L.R.C.P. in 1889, graduating M.B., B.Ch.Camb. in the same year. He proceeded M.D. in 1892. He was senior house-surgeon at St. Bartholomew's from 1889 to 1890, and then took the post of resident surgical officer at Birmingham General Hospital. While at Bart's he had met Frances Mary, daughter of the late Major-General Cole, who was a nurse at that hospital, and subsequently married her; she survived him by only twenty-four hours. Dr. Holden went to Reading in 1892, and built up a most successful general practice; for ten years he was on the staff of the Royal Berkshire Hospital. He was prominent in many forms of public service to Reading, and for six years represented Castle Ward on the Town Council, retiring in 1907. In 1927 he was re-elected, this time as a representative of Abbey Ward, and retained his seat until last February, when increasing ill-health compelled his retirement. He had been chairman of the public health committee during one of the most progressive periods of the town's development. He became mayor of Reading at the end of 1934, in this respect following a family tradition of civic dignity and service. He was an energetic freemason, had twice been W.M. of the Reading Lodge of Union, and was a Past Provincial Grand Deacon of England. He devoted much time to the work of the St. John Ambulance Association, had been president of the Reading centre since its formation and chairman for twenty-one years; for his services he was created a Knight of Grace of the Order of St. John of Jerusalem. During the war he held the commission of captain, R.A.M.C., and had charge of the officers' hospital in Reading. His principal recreations were music and angling. Dr. G. H. R. Holden had been a member of the British Medical Association for fifty-three years, and was vice-chairman of the Reading Insurance Committee in 1928. He leaves three sons, the youngest of whom is in medical practice in Reading, and follows his father also in being a member of the Reading Town Council.

Exactly a year after leaving Cleland, Lanarkshire, where he practised for forty-six years, Dr. JOHN LITHGOW, senior, died at Castleton, Derbyshire, on May 9, aged 73. A native of Cleland, he was educated for the medical profession at Anderson's College and the University of Glasgow, graduating M.B., C.M. in 1890, and proceeding to the M.D. in 1898. Besides the work of a busy general practitioner Dr. Lithgow found time to take a keen and active interest in the work of the Shotts School Board and in the business of the parish council. As far back as 1903 he held the rank of surgeon lieutenant in the volunteer battalion of the Lanarkshire Royal Engineers, and on the outbreak of war in 1914 was posted to the 6th Highland Light Infantry. He went to Gallipoli and was wounded in the leg. On recovery he was sent to Egypt, and altogether had four and a half years of active service, being awarded the Territorial Decoration. He was chairman of the Lanarkshire Division of the British Medical Association in 1922–3. All his life Dr. Lithgow was a lover of animals, and was noted as a judge and owner of hackney horses. He is survived by his wife, one son (Dr. John Lithgow of West Hartlepool), and two daughters.

"J. M. M. K." writes: It was with deep regret that I learned the other day of the death of my old friend John Lithgow. His passing recalls many happy memories of our "year" of 1890 and Glasgow University in the spacious days of the late eighties of last century, when the medical curriculum was four years, and few of us worried too much about examinations or were excessively industrious. I can visualize him strolling out of the classroom into the quadrangle in embryo (what he proved to be in professional life) the embodiment of sound common sense and good humour. Lanarkshire has contributed to medicine a number of most distinguished pioneers and teachers—Cullen, the two Hunters, Smellie. In addition it has supplied for generations a succession of family medical practitioners of great professional repute. Among these must now be included John Lithgow, beloved by his patients and respected by his fellow practitioners. Nor were his interests confined to medicine. What pleasure his successes in breeding hackneys gave him! His friends pay honour to a man of sterling worth and human sympathy.

The sudden death on May 15 of Dr. HUGH STANLEY REVELL at the age of 70 deprived Wandsworth of its senior practitioner. He was arranging to retire from active work, and was being entertained at a farewell party, at which he was presented with a gold cigarette case; he was about to return home when a heart attack overcame him. Born in Chertsey, he was first educated at University College School, from which he went to University College Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1894. After serving as house-surgeon to the hospital he began general practice in Wandsworth, where he became very popular. He was the founder and medical officer of the Wandsworth Medical Aid Society, and a vice-president of the British Legion and the Southfields Club and Institute. During the war he was a special constable, and in recent months interested himself in A.R.P. work, being in charge of the Southfields first-aid post and giving numerous lectures. Dr. Revell had a warm concern for social welfare, and was outstanding in work among children, and he also gave great assistance to St. Michael's Church, Southfields; his main interests were centred, however, in professional duties. He joined the British Medical Association in 1911. He leaves his widow, one son, and two daughters.

The death of Dr. J. R. PERDRAU on Whit-Monday after so short an illness will come as a shock to his friends and create a gap in the field of research workers which it will be hard to fill. Dr. Perdrau (writes Dr. Richard Eager) was a student of Guy's and took his M.B., B.S. degree of London in 1909. Soon after this he entered the asylum service, and it was in this capacity as an A.M.O. at what is now called the Devon Mental Hospital, Exminster, that I came in close contact with him. Whilst there Dr. Perdrau's interest in pathology and research was aroused, and I well remember how, in spite of the lack of any proper laboratory equipment in those days, his keenness and enthusiasm enabled him to start a collection of stained sections of the brain and spinal cord, which by now must be second to none. Delay in providing the laboratory facilities which now exist in most mental hospitals in this country ultimately resulted in the loss to psychiatry of a brilliant and enthusiastic research worker. Dr. Perdrau could not wait. He obtained the appointment of pathologist to the Lambeth Hospital, and the skill and ability which he displayed there ultimately secured him the appointment of pathologist to the National Institute for Medical Research at Hampstead and membership on the staff of the Medical Research Council. Dr. Perdrau's researches on encephalitis lethargica are of world-wide repute and are referred to in most articles on this subject. His death at an early age must be considered as a tragedy in the branch of

work in which he was becoming so distinguished. He leaves a widow and three children, to whom the sympathy of all will be extended.

Dr. JOHN WILLIAM DALE, who died on May 17 in his sixty-fourth year, after a long illness, had been prominent in the public life of Wallasey. Born in Londonderry, he studied medicine in Belfast, and graduated M.B., B.Ch., B.A.O. of the Royal University of Ireland in 1904. Two years later he began to practise in the Yorkshire village of Yeadon, but in 1912 he succeeded his father, who was then practising at Wallasey. Joining the R.A.M.C. with the commission of captain in 1914, he was awarded the Military Cross and promoted to major. In 1920 he was elected to the Wallasey Council in the Independent Liberal interest, and was a member of most of its committees. He was later raised to the rank of alderman, and appointed to the bench of justices in 1927. Dr. Dale joined the British Medical Association in 1918.

We regret to announce the death of Dr. MICHAEL JOSEPH WALSH of Knowle, Bristol, on May 18. Dr. Walsh was a student of University College, Cork, where he graduated M.B., B.Ch. in 1921. He worked for a short time in Nottingham, but later went to Bristol, where he carried on a large practice. He had a genius for making friends, and was well known in medical and social circles in Bristol. He was a keen sportsman. He died at the comparatively early age of 41 years, to the great sorrow of his numerous friends. He leaves a widow and two children.

The death took place in a Glasgow nursing home on June 2 of Dr. CHARLES JOHN SHAW, who for twenty-three years had been medical superintendent of Montrose Royal Asylum up to 1937, when he retired. Dr. Shaw was a native of Perthshire, and after a course of medical study at Edinburgh University he graduated M.B., Ch.B. in 1902. He gained the Murchison Memorial Scholarship in clinical medicine, and after periods of residentship with the late Professor Greenfield and the late Dr. Berry Hart he decided to devote himself to psychiatry. After holding appointments as assistant medical officer in Perth District Asylum and as honorary assistant medical officer in the Glasgow Royal Asylum at Gartnavel, he became medical superintendent of the Argyll and Bute District Asylum at Lochgilphead, and finally in 1914 became superintendent to Montrose Royal Asylum. Dr. Shaw joined the Royal College of Physicians of Edinburgh as a Member in 1905, proceeding to the Fellowship in 1908. In 1906 he was awarded the bronze medal of the Royal Medical Psychological Association. Under his administration Montrose Asylum developed greatly. Dr. Shaw made various contributions to medical literature, chiefly in connexion with his specialty, including "Liability of the Insane to Tubercular Infection" in the *Journal of Mental Science* (1907), "Opsonic Index to Various Organisms in Insane Cases" (1908), "Clinical Results following Injection of Tuberculin" (1908).

Dr. ALEXANDER LAMBERT, whose death in his seventy-eighth year occurred in New York City on May 9, had served as director of civilian relief of the American Red Cross in France during the great war and was a recognized leader of research in the field of addiction to alcohol and narcotics. Personal physician to Theodore Roosevelt, whom he accompanied on his hunting and fishing trips, he was president of the American Medical Association in 1919.

Dr. RICHARD CLARKE CABOT, for many years professor of clinical medicine at Harvard Medical School and chief of staff at the Massachusetts General Hospital, died after a long illness on May 8 at Boston, aged 71. Author of *Physical Diagnosis*, *The Meaning of Right and Wrong*, *What Men Live By*, and *Adventures on the Borderland of Ethics*, he combined a distinguished career as diagnostician and hospital executive with the professorship of social ethics at Harvard. An early advocate of "socialized medicine," Cabot's zeal and frankness sometimes precipitated critical situations. In 1916, for instance, the Massachusetts Medical Society considered his expulsion for "publicly advertising the faults of the general practitioner." He was one of the first to employ a full-time paid "social service worker" at the Massachusetts General Hospital; the post was created in 1905.

The following well-known foreign medical men have recently died: Dr. MAX BLEIBTREV, emeritus professor of physiology and former director of the Physiological Institute at Greifswald University, aged 78; Professor ERNST FINGER, for many years director of the clinic for syphilology and dermatology at the General Hospital at Vienna, aged 83; Professor CARLO MANCA, director of the Institute of Morbid Anatomy at Parma, aged 39; Dr. PROPSER MERKLEN, professor of clinical medicine and formerly dean of the Strasbourg Faculty of Medicine and member of the Académie de Médecine; Dr. ALFRED STENGEL of Philadelphia, author of *A Text-book of Pathology* and former editor of the *American Journal of the Medical Sciences*, aged 70; Dr. IVO NOVI, emeritus professor of materia medica and pharmacology at Bologna and founder of the first anti-rabic institute in Italy; Dr. HUGH TALBOT PATRICK of Chicago, one of the founders of the *Archives of Neurology and Psychiatry* and emeritus professor of neurology at the North Western University, Chicago, aged 78; and Dr. AUGUSTE COPPEZ, surgeon-in-chief of the Civil Hospital of Tournai and Knight of the Order of Leopold, aged 58.

Medico-Legal

POISONS BY POST

An Irish Prosecution

By the Poisons Rules, 1935, barbiturate drugs may be sold by retail only by an authorized seller of poisons on the prescription of a doctor, dentist, or veterinary surgeon. The Pharmaceutical Society of Ireland, where the law dates from 1875, recently prosecuted a company known as J. Redfern, Ltd., of 3 and 4, Lower O'Connell Street, Dublin, for selling phenobarbitone, or luminal, contained in a preparation known as "renesol" in a container not distinctly labelled with the name of the article.[1]

Counsel for the society said that the company was registered in England and its apparent purpose was to distribute this medicine, which was advertised in the public press as a cure for epilepsy. Inquirers were sent a form of questionary to ascertain their symptoms, and when this was returned they were told that they were proper subjects for treatment by "renesol" and invited to buy the drug at £1 per packet. They were sent booklets purporting to be lessons in health for epileptics, and given to understand that, if they followed the lessons and took as many capsules as they could afford, they would be cured. A lady inspector of the society gave evidence that she had returned a questionary and been told she was an epileptic. She had visited the registered office, a room on the top floor of the building, and had found only one person there, a woman employee. She had paid £1 and been given a receipt, and had received instructions and the capsules at her home. Counsel alleged that the office was used as a depot for sending the drug to England.

Evidence was given that the bottles were labelled as poison, but not with the contents of the drug, and that each capsule contained one grain of phenobarbitone. The registrar of the society pointed out that the company prescribed in some of its literature three capsules twice a day, but that the maximum dose recommended by the B.M.A. [*sic*] was two capsules. The company called evidence to show that the employee who actually sent out "renesol" was a qualified pharmaceutical

[1] *Irish Times*; *Manchester Guardian*, May 26.

chemist. They said that the bulk of the business was in England, only 3 per cent. being in Ireland, and that since the complaint about the label had been made new labels had been issued. The capsules were made in America. Charles Goldblatt, managing director, said he was an American citizen and carried on business all over the world. He had had many testimonials and never a complaint. The summons was the first indication he had had that he was breaking the law. He had always been willing to rectify any irregularity if the society had represented it to him, and he was anxious to comply with the law. Counsel for the society remarked that in that case he was sure Mr. Goldblatt could close down the 97 per cent. of his business that he was doing with England now that he knew that it was illegal. The witness replied that he did not see why; the company was in Ireland. The district judge imposed a fine of £2 on the company for selling phenobarbitone in a container not distinctly labelled with the name of the article, but dismissed summonses for selling by means of unqualified persons.

The Pharmacy and Poisons Act, 1933, does not prohibit the receipt by persons in this country of poisons sent by post from abroad. Those poisons which come under the Dangerous Drugs Acts are covered by the prohibition against possessing them and against importation without a licence. Of the remainder of the "Fourth Schedule" poisons—those for which a prescription must be given—the barbiturates are probably the only ones which it is worth while to send here by post. This is the first organized attempt to take advantage of the difference in the law between Eire and this country. If the example were followed by other firms the provisions of the Poisons Act and Rules relating to Fourth Schedule Poisons might be largely nullified. It is difficult to see how legislation could be framed in this country to deal in a practical manner with the large-scale posting of barbiturates from Eire. Parliament could prohibit their possession or importation without a licence, or could impose a prohibitive Customs duty. The prohibitive duty could only be enforced in a small percentage of cases, and it would be rather harsh to prosecute ignorant people for an offence which few of them would know they were committing. The best solution would be to persuade the Government of Eire to pass legislation analogous to our own. It is obviously undesirable that people should take doses of phenobarbitone without medical advice.

A DENTIST'S SUCCESSFUL APPEAL

The ethical standards of the dental profession are maintained by the Dental Board of the United Kingdom. This body inquires into complaints and may recommend to the General Medical Council that the name of a dentist be erased from the *Dental Register*. The General Council then holds an inquiry, and, if it sees fit, directs the erasure of the name. Unlike the medical practitioner, the dentist has a statutory appeal to the High Court against the decision of the Council to erase his name. This right of appeal is granted by the Dentists Act, 1921, Section 9. Within three months of receiving notice of erasure he may appeal in the manner provided by the ordinary rules of court; the appeal is heard by the Divisional Court of the King's Bench Division, the personnel of which is the same as that of the Court of Criminal Appeal, and the court may make any directions it thinks proper. There is no appeal to a higher court. A few have appealed under this section, but not successfully until the case of Buckley *v.* the Dental Board and the G.M.C., heard on April 27. The dentist had had his name erased for making erroneous statements in two documents which he had been called upon to fill up. He had not appeared before the Board but had appeared before the Council. On his appeal the Lord Chief Justice ruled that the court might inquire into the whole of the facts. When this had been done it appeared that the dentist had borne an unblemished character, his errors had been unintentional slips, and he had at the time been harassed and distressed by illness. His appeal succeeded, the court finding that these two slips in a long career did not justify the stigma of infamous or disgraceful conduct. The Lord Chief Justice added that if all the facts had been diligently put before the Council they would certainly have arrived at the same conclusion, and stressed his opinion that neither the Board nor the Council was to blame in any way.

The interest of the case is that it gave the Lord Chief Justice an opportunity to state the powers which the section confers on the appellate tribunal. His lordship said that the position of the Divisional Court is clearly set out in the judgment delivered by Lord Reading, L.C.J., in Stockton *v.* Central Midwives Board (1915, 3 K.B., at p. 762): the right of appeal is as full as that given by any other statute and the court may hear further evidence by affidavit or by word of mouth. It is the duty of the court to see that justice is done; it must inquire into all the circumstances and is absolutely unfettered in its investigation. Some persons maintain that medical practitioners should have a right of appeal from disciplinary decisions of the General Medical Council. If this right were ever given, no doubt the statute would follow the wording of the Dentists Act and the court be given power to re-hear the case from the beginning if it so desired.

A JUSTIFICATION OF SPEED

Recently a medical practitioner was summoned before the Maidstone Bench[1] for driving his car at forty miles an hour in a built-up area. He admitted the offence, but said that he was hastening in answer to a call to visit a patient who was suffering from cardiac asthma. He knew a police car was behind him at the time. The solicitor who conducted his defence pointed out that a doctor might, in order to save life, perform an abortion which would otherwise be a felony; he surely might with the same excuse exceed the speed limit. The bench, without retirement, dismissed the case. This defence is, of course, distinct from the statutory exception in the Road Traffic Act, 1930, in favour of cars being used for ambulance duty. It is founded on common law, as the magistrates recognized.

In contrast to the Maidstone case is that of a doctor who appeared before the Sutton justices, in Surrey, on June 1, at an adjourned hearing. The defendant gave evidence that he was called urgently to a case of serious heart attack in a patient aged 87, that it was a case in which every second counted, and that if he had been late the patient might well have died; it was therefore one that could be described as a matter of life and death. It was made clear by the Bench in giving judgment that they believed the defendant's statement, but they held that the circumstances did not constitute a special reason within the meaning of the Act, and they fined the doctor 20s. and endorsed his licence.

FEES FOR REPORTS TO SOLICITORS

A medical practitioner received a request from a firm of solicitors for a report on one of his patients, the report to include specifically the previous medical history and information concerning the family history. The written consent of the patient was obtained, and, in fact, it was on his suggestion that the solicitors who were acting for him wrote to the doctor. In a letter to the doctor the solicitors intimated that they would pay his fee for the report. When the report was supplied the solicitors declined to pay a fee, saying that it was no use to them

[1] *Times*, May 3. *South Eastern Gazette*, May 2.

and had they known that the doctor had not seen their client for six years they would not have asked for it. After some correspondence, which proved fruitless, the doctor consulted the London and Counties Medical Protection Society. Believing the case to be one involving an important principle, the society took the matter up and gave instructions to its solicitors. The latter wrote to the patient's solicitors, but as the claim was still disputed a summons was issued in the County Court. After a hearing, judgment was given in favour of the practitioner for the amount of his fee and costs.

The case is of no little importance and interest to the profession. There was a history of insanity, and apparently some allegation of insanity had been made against the patient. It was for this reason that the solicitors required a report not only on the medical history of their client but also concerning his family. The fact that the doctor had not seen the patient for six years did not in any way diminish his knowledge, and, moreover, this fact was known to the patient when he instructed his solicitors to ask the doctor for a report. The case serves to illustrate the point that when a firm of solicitors asks for a report from a doctor and agrees to pay for it, the fact that the report is not what is expected or does not suit the solicitors' purpose does not absolve them from liability.

Medical News

A national conference on maternity and child welfare, under the patronage of Queen Mary, will be held in the Great Hall, B.M.A. House, Tavistock Square, London, on June 27, 28, and 29. It is being organized on behalf of the National Council for Maternity and Child Welfare by the National Association of Maternity and Child Welfare Centres, in co-operation with the Maternity and Child Welfare Group of the Society of Medical Officers of Health. The president of the congress is Dr. Walter Elliot, Minister of Health; the offices are at Carnegie House, 117, Piccadilly, W.1. The general question underlying the discussions will be the needs and problems of parenthood, arranged under six subheadings. A clinical course for medical practitioners will be held on Sunday, June 25, and Monday, June 26.

The eighth joint conference of burial and cremation authorities will be held at Portsmouth and Southsea on June 26, 27, 28, and 29. The programme includes an address by Dr. A. B. Williamson, medical officer of health for Portsmouth, on Monday, June 26, at 2 p.m., on "The Problem of the Disposal of the Dead after Air Raids," and the presidential address by Lord Horder, president of the Cremation Section, on Tuesday, June 27, at 2.30 p.m. Particulars of conference fees, etc., may be obtained from Mr. R. V. B. Perkins (Joint Conference, Southsea), 47, Nottingham Place, London, W.1.

The Oxford Ophthalmological Congress, 1939, will be held at Keble College from July 5 to July 8. The Doyne Memorial Lecture on "Ocular Consequences of Certain Chiasmal Lesions" will be given by Mr. F. A. Williamson-Noble. On July 6 a discussion on orthoptic training will be opened by Mr. Frank Law and Mr. Keith Lyle, and the discussion on July 8 on miners' nystagmus by Mr. Harrison Butler. Besides the set discussions independent papers have been promised by Sir Arnold Lawson, Mr. P. G. Doyne, Mr. Basil Graves, and Dr. Bernard Samuels of New York. Facilities will be provided in the Scientific Museum for demonstrations of ophthalmological interest. The full programme of the congress can be obtained from the honorary secretary and treasurer, Mr. F. A. Anderson, 12, St. John's Hill, Shrewsbury.

The first International Congress of the Biology of Sport and Physical Education will be held at Brussels from July 9 to 12. Further information can be obtained from the Secretariat, 90, Avenue Janson, Brussels.

A congress entitled "Réunions Médico-Juridiques Internationales pour la Protection de la Population Civile en Temps de Guerre" will be held in Liége from June 24 to 28. The main objective of the discussions will be the study of various measures to be taken to ensure the adequate functioning of the chief public utility services. Further information is obtainable from the secretary of the congress, Dr. G. D. Decharneux, 13, Rue des Maraîchers, Liége, Belgium.

A council meeting and twenty-first birthday celebration of the National Council for the Unmarried Mother and Her Child will be held in Drapers' Hall, Throgmorton Street, E.C., on Tuesday, June 13, at 3 p.m.

A meeting of the Kensington Medical Society will be held at St. Mary Abbots Hospital, Marloes Road, W., on Wednesday, June 14, at 8.30 p.m., when Lord Horder will give an address on "Medical Aspects of Physical Disease."

The next of the Réunions Médico-Chirurgicales de Morphologie will be held in the theatre of the School of Anthropology, Paris, on Tuesday, June 14, under the presidency of Dr. Thooris. The programme includes lectures on the study of the young child in the Département de l'Ouest as compared with Paris; medical and lay cheiroscopy; a morphological index for the palatal vault; the paraffinomas; abdominal surgery and "masso-kinesitherapy"; and a disquisition on the contractual obligation of the surgical operation. The arrangements are in the hands of Dr. Claoué, 39, Rue Scheffer, Paris, XVIe.

The Belgian Association of Social Medicine has arranged, from June 23 to 25 at Liége, international meetings devoted to the study of the various problems of social medicine. Details may be obtained from the secretary-general, Professor Jean Firket, 1, Rue des Bonnes-Villes, Liége. Also at Liége, from June 24 to 28, there will be a congress on cancer, under the auspices of the International Union against Cancer. The organizer of the congress is Dr. R. Reding, director of the Institut de Recherches Cancérologiques, Fondation Yvonne Boël, Hôpital Brugmann, Brussels, from whom full particulars may be obtained.

National Baby Week, 1939, will be held from July 1 to 7. The council in its propaganda this year is concentrating attention on "Fathercraft in the Child Welfare Movement." Full information about the work of the council and its plans may be had from the secretary, Miss Norah March, B.Sc., 117, Piccadilly, London, W.1.

Mr. Hugh Lett, the President of the Royal College of Surgeons of England and consulting surgeon to the London Hospital, will present the prizes to the students of the London Hospital Medical College on Thursday, June 29.

Lord Baldwin will preside over Barnardo Founder's Day celebrations at Barkingside on Saturday, June 24, at 3.30 p.m.

It was announced last week that the Golden Square Throat, Nose and Ear Hospital, W., and the Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C., are to amalgamate as the result of a unanimous decision reached at a meeting in London of the committees of management of the two institutions. A new hospital will, it is understood, be erected in the metropolis.

A fund is being raised by the Royal Berkshire Hospital, Reading, to perpetuate the memory of Mr. J. L. Joyce, F.R.C.S., its senior surgeon, who died on March 18, and the operating theatre attached to the new Nuffield Block is to be named the "Joyce Operating Theatre."

The French League against Cancer has awarded the Amerongen prize of 160,000 francs to Professor A. H. Roffo, director of the Institute of Experimental Medicine for the Study and Treatment of Cancer of Buenos Aires University, for his work in the development of malignant growths from articles of food.

Professor Hans v. Haberer, director of the Cologne University Surgical Clinic, has been elected president of the German Surgical Society for 1940.

Dr. Leonardo Conti has succeeded the late Dr. Wagner as the chief Reich medical officer.

No. 21

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 27, 1939.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (*a*) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (9 in 1937) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1939					1938 (Corresponding Week)					1930-8 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	31	3	6	1	—	26	5	13	—	—		
Deaths		1	—				1	2				
Diphtheria	732	84	164	35	12	1,002	128	177	37	16	917	135
Deaths	18	2	10	—	—	29	5	6	6	1		
Dysentery	33	8	25	2	—	50	13	102		—		
Deaths					—				—	—		
Encephalitis lethargica, acute	1	—	—		—	3	—	1	—	—		
Deaths		—					—					
Enteric (typhoid and paratyphoid) fever	25	2	10	2	1	17	2	14	6	—	28	
Deaths	—	—	—	1	—	—	—	1	—	—		
Erysipelas			58	3	8			80	10	4		
Deaths		1					1					
Infective enteritis or diarrhoea under 2 years												
Deaths	36	8	7	4	3	31	9	17	6	—		
Measles		44	164		6			380		5*		
Deaths	2	—	—	4	—	16	6	11	1	1		
Ophthalmia neonatorum	105	11	17		—	102	11	28		—		
Deaths												
Pneumonia, influenzal †	794	56	4	2	19	1,082	82	9	4	4	910	74
Deaths (from influenza)	29	4	—	—	—	39	9	5	—	—		
Pneumonia, primary			201	14				246	6			
Deaths		6		15	7		24		11	13		
Polio-encephalitis, acute	3	—				—	—					
Deaths		—					—					
Poliomyelitis, acute	5	1	1		—	5	1	—		—		
Deaths		—					—					
Puerperal fever	2	2	13		2	4‡	4	10		1		
Deaths		—					1§					
Puerperal pyrexia	194	18	18	3	1	176	17	21		1		
Deaths												
Relapsing fever	1	—			—	—	—			—		
Deaths												
Scarlet fever	1,694	187	233	45	73	2,048	218	362	112	114	1,887	245
Deaths	3	—	—	1	—	3	1	—	—	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—			—	—	—		—	—		
Typhus fever	—	—	—		—	—	—	—	—	—		
Deaths					—				—	—		
Whooping-cough		321	195		18			80		16		
Deaths	21	4	4	—	1	11	3	2	1	5		
Deaths (0-1 year)	309	42	63	45	19	324	59	67	29	16		
Infant mortality rate (per 1,000 live births)	48	37				54	48					
Deaths (excluding stillbirths)	4,503	807	607	222	132	4,689	927	680	209	141		
Annual death rate (per 1,000 persons living)	11.1	10.4	12.3	14.9	11.6	11.5	11.8	13.9	14.1	12.5		
Live births	6,613	1,123	915	445	256	6,973	1,313	996	430	223		
Annual rate per 1,000 persons living	16.2	14.4	18.5	29.9	22.5	17.1	16.7	20.3	29.0	19.8		
Stillbirths	283	43	44			291	44					
Rate per 1,000 total births (including stillborn)	42	32	46			40	32					

* 5 cases in Belfast alone.
† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.
‡ After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.
§ Deaths from puerperal sepsis.

EPIDEMIOLOGICAL NOTES

Enteric Fever

With the exception of the enteric fevers, the incidence of acute infectious diseases has fallen considerably during the week under review. Twenty-five cases of typhoid and paratyphoid were notified in England and Wales during the week, compared with 20 in the previous week and 17 in the corresponding week of last year, but the figure remains below the median value for the last nine years. There are 3 in the county of Lancaster, of which 2 are in Lancaster borough and 1 is in Liverpool. The cases are widely distributed, in both towns and rural districts; 2 cases of typhoid fever were notified in Kendal, and reports have come to hand that 3 additional cases have been notified since: 3 of the cases were not discovered until the convalescent stage of the disease was reached. Investigation into the source of the outbreak has shown that there was no common factor except water, samples of which have been taken for bacteriological examination.

In Scotland notifications of enteric fever during the last four weeks were 29. In the week under review there were 10 cases, of which 2 were due to typhoid and 8 to paratyphoid B; 7 of these occurred in the Hawick area in the county of Roxburgh. The outbreak, which is not connected in any way with the epidemic of typhoid fever in the Hawick area last year, appears to be well in hand, but no details are available as to the source of the infection.

Figures for Diphtheria

The incidence of diphtheria has declined in the first four months of 1939, compared with the corresponding period of 1938, in the United States and in most European countries, with the exception of Denmark, Finland, and Switzerland.

The decline has been appreciable in Sweden since 1930 and Hungary since 1932, in Norway and Rumania since 1934 and Denmark since 1935, and in Bulgaria since 1936. In Hungary inoculation against diphtheria has recently been made compulsory; by December 31, 1935, more than 1,000,000 children had been vaccinated. There has been a steady rise in the incidence of diphtheria in Germany since 1928.

Typhus Fever in North Africa in 1939

Compared with the corresponding period of 1938 a considerable increase in the incidence of typhus fever was recorded in Egypt, 1,411 cases compared with 599, and in Tunisia, 1,821 cases compared with 801. In Egypt the number reported exceeded the figure for the previous three years but did not reach the level of the first quarter of 1934, when 3,528 cases were reported, or of 1935, when there were 1,461 cases. The seasonal maximum was reached in the fortnight ended April 29, when 488 cases were reported, compared with 423 in the previous fortnight. The provinces most affected were: Gharbiya, Minufiya, and Daqahliya, in Lower Egypt. In Tunisia, in which the seasonal maximum is usually reached in May, the number reported for the four-week period ended May 21 (1,075) was the highest recorded for many years. The civil districts of Susa, Sfax, and Gafsa were chiefly affected, but the disease appears to be widely spread over the whole of the country. In Algeria the number of cases reported during the four-week period ended May 6 rose from 251 to 283: of these 101 were notified in the district of Batna and 63 in that of Constantine. In Morocco 198 cases were notified during April: 70 occurred in Southern Chauia, 31 in the territory of Port-Lyautey, and 33 in Taza territory.

The Minister of Health has issued a Circular (No. 1829) requesting local authorities concerned to make available the services of their tuberculosis officers for the examination, where necessary, of men called up under the Military Training Act, 1939.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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QUERIES AND ANSWERS

Thrombo-angiitis Obliterans

Dr. X. (Belfast) requests suggestions for treatment of thrombo-angiitis obliterans where radiant heat, diathermy, and Buerger's passive exercises have proved unavailing.

Treatment of Nephritis

Dr. L. S. GATHERGOOD (Birmingham) writes: I have a patient with tubular nephritis, most copious albumin in the urine, and a low blood urea (25 mg.). Her feet and legs are distended with fluid, and the whole body is more or less affected. Her weight is 11 st. 4 lb., as against a weight of 9 st. 10 lb. a year ago, and I am unable to persuade the kidneys to eliminate this excess fluid. The following have been tried: urea, "neptal," Guy's pills, alkalis, "novurit" suppositories, an increased protein diet, and, of course, a salt-free diet. Of these the Guy's pills appeared to produce the best results, but the weight remains raised. Any suggestions would be welcome.

Treatment of Common Cold

Dr. M. ELYAN (London, W.1) writes: If Dr. R. H. P. Hick (May 27, p. 1122) will refer to my observations published in a letter in the *Journal* of January 15, 1938 (p. 146), on the successful treatment of the common cold and its sequelae with sulphanilamide, carried out over the previous year, he will notice that his individual experience is entirely borne out by my series of experiments. It might interest him to know that I have since had the opportunity of carrying out this treatment on a wider scale in a large industrial concern, where I obtained an 86 per cent. result—that is, cure within forty-eight hours.

Relief of Itching with Jaundice

Dr. W. SCOTT CHARLTON (London, S.W.) writes: I would suggest to "A. K. T." (May 27, p. 1122), who seeks advice on the treatment of the itching associated with obstructive jaundice, that he try the empirical but often effective use of thyroid extract in small doses. I suggest a dose of half a grain given three times per day.

Air-swallowing

Dr. FRANK RIGGALL (Elizabeth Hospital, Prairie Grove, Arkansas), in reply to Mr. D. Stanley-Jones's inquiry about air-swallowing (May 6, p. 962), writes: We have had excellent results in our clinic by: (1) Informing the patient in very simple terms that gas is very rarely formed in the stomach, and that the trouble is due to swallowed air. That the air reaches the stomach because the nerves to the "food-air" gateway have become upset, and that Nature, in upsets

of this kind, always sends air to the stomach instead of food to the lungs because the former is least harmful. We invariably make it a point to mention that the condition is harmless to the patient but disgusting to the listener. (2) Asking the patient to stand before a mirror during a session of "gas" and watch the rise and fall of the thyroid cartilage as the air is swallowed. (3) Clinching the argument by instructing the patient that a large cork keeping the mouth open will prevent the swallowing of air and thereby stop an "attack of belching" or prevent one. The patient must be told how this prevents air reaching the stomach. If the doctor knows his patient well enough it is of help sometimes to preface the lesson by saying that anyone but a fool can be cured of this nasty habit. Occasionally a patient will reply to (3) that she will die if she "cannot belch the gas off the stomach." This type is difficult if not impossible to cure, and should be handled strictly with the gloves off—no other way succeeds in our experience. This class is sometimes the variety that Samuel Jones Gee cured with a look!

Income Tax

Acquisition of Additional Practice

"ALPHA" puts the following question. A. and B., who have been in practice for ten years, purchased an additional practice as from January 1, 1938, and the year 1938 showed an increase of £500 in the firm's profits "entirely due to the taking over of the practice." Is the inspector of taxes correct in claiming to make additional assessments of £125 for 1937–8 and £500 for 1938–9?

*** Yes. The terms of the purchase agreement and the admitted facts are sufficient to establish "succession" by A. and B. to the acquired practice, even though some of the patients may not have transferred to the new firm. Where succession takes place the purchaser is liable to account for tax on the new source of income as from the date of acquisition, and A. and B.'s accounts to December 31, 1937, and consequently their income tax returns to 1938–9 inclusive, will not have reflected the new source of earnings. On the facts stated the inspector's action is justified.

LETTERS, NOTES, ETC.

Pasteur's Work and the Crimean War

"F. F. H." writes: I read with interest the article on "The Control of Disease" by Lord Horder (*Journal*, May 27), but was surprised to find the following sentence there: "The Crimea provided the background on which the work of Pasteur was tested on the large scale." This reminds one of the remark put into the mouth of Prince Albert in a recent film about Victoria, when he had just visited some soldiers wounded in the Crimea: "If only they had Mr. Lister's antiseptics." Actually Pasteur's work on fermentation was only recorded in 1857 and that on the disease of wines in 1863, while Lister graduated about two years before the Crimean War and did not use carbolic acid until 1865.

*** Lord Horder originally wrote, "The Crimea provided the social background of the work of Pasteur," but in correcting the final draft he changed this wording and unwittingly committed the anachronism to which "F. F. H." draws attention.

Mosquito Nets in Prevention of Malaria

"AFRICANUS" writes: In a quarter of a century of service in malarial countries, though I never took quinine after the first few months, I never had malaria. This was probably due in part to good fortune, but also to the care which was taken to avoid so far as possible being attacked by mosquitos. The two main methods that were adopted were, first, the wearing of mosquito-boots, and, secondly, the proper use of mosquito-nets. The mosquito-boots were black boots of the Wellington type, with thin leather going up to the knee. I never failed to wear them, even at dances, in any place where mosquitos were to be expected. The anopheles prefer to do their deeds of darkness under the table, and it is here that the boots are such a protection. After an attempt on the boots the mosquito directs her attention to more attractive ankles. Both for comfort and safety mosquito-boots are invaluable. As to mosquito-nets, I have been dumbfounded to see the way in which mosquito-nets are used in many places where mosquitos flourish, especially in Europe. More often than not a frame is erected from the four corners of the bed and the net is placed outside the frame. The result is that the net can only be tucked in very roughly under the mattress and outside the bedstead, leaving a gap around each bedpost. Sometimes, indeed, the net is not tucked under the mattress but is left touching the floor, so that all the mosquitos, who delight to live under the bed, can sally up for the night's pleasure and return under the bed at dawn. Obviously, any method which involves leaving open gaps between the net and the mattress is useless; indeed, worse than useless, for mosquitos once in the net may find it difficult to get out again. Mark Twain describes his adventures with mosquitos in Venice. His plan was to tuck the net in all round his bed, leaving a gap for him to get into bed. Then he made a motion as if to get in. The mosquitos gave a view halloo and swarmed in through the gap, whereupon he shut down the net and slept on the floor. A tale which is "more than somewhat" true. To be of any benefit it is essential that the net should be well tucked in under and all round the mattress. There must be no obstruction between the net and the mattress. If the net is supported by a frame on posts at the four corners of the bed, then it must be suspended by means of tapes inside the frame and posts. If the net is supported by a ring, then the net must be suspended from the underside of the ring, again by means of tapes, and come down to the mattress inside all bed-posts, bed-backs, and the like. Nothing must be allowed to prevent the net coming down from the support direct to the mattress, so that when it is tucked under the mattress not the smallest gap can be found between it and the mattress. It need hardly be said that a net with a hole in it is valueless.

Unusual Case of Hernia

Captain F. V. STONHAM, I.M.S. (Punjab) writes: A priest, aged 62, was admitted to hospital with a left inguinal hernia which had become strangulated twenty-four hours previously. He stated that his left testicle had never been in the scrotum, and that he had had bilateral herniae for forty-two years. On examination he had a large tender swelling in the scrotum extending up along the left inguinal fold. Under chloroform anaesthesia through the conventional approach the sac was exposed and was found to consist of two lobes, one of which was firmly attached to the lower part of the scrotum; the other passed upwards and outwards between the external oblique muscle and the skin, and the opening into the abdomen admitted one finger. On dividing the constriction and opening the sac it was found to contain about eighteen inches of small bowel, which was in satisfactory condition and was therefore returned to the abdomen. In addition, inside the sac were the left spermatic cord and an atrophic testicle. As there was no occasion to remove this testicle, nor had any consent been given, it was placed in the scrotum through an opening near the neck of the sac, and the remainder of the sac was removed and the wound closed. It is evident that the testicle in its descent had invaginated itself into the peritoneal cavity and formed a long pedicle, containing its blood vessels and the vas deferens, which was springing from the left iliac fossa just above the internal ring. It is possible that the testicle had occupied the sac for some time, and as it was atrophic, being only about one-third the size of a normal testicle, the patient had not noticed it. He made a good recovery, and the left testicle remained in the scrotum.

Infectious Practitioners

"PHYSICIAN" writes: I should be interested to hear opinions from some of your readers on the ethical position of a medical or dental practitioner who knowingly allows his patients to catch influenza from him. A fortnight ago I went to a dentist. After some ten minutes he said casually, "Do you recommend fortitude to your patients? I went to bed with a temperature of 102° last night—'flu, I suppose—but *I* don't give in to these things. *I'm* not going to have three days in bed." I imagine that no patient could escape catching his disease; I am not susceptible to influenza and have never caught it in the ordinary course of my practice. I certainly caught it from this man and had to put off my patients, both out of duty to them and because I was not physically or mentally fit to treat them. A week later, when otherwise fitter, I lost my voice, which involved a second period of sick leave. Apart from my own suffering, this dentist deliberately caused me an appreciable loss of revenue, for which I probably have a right of action against him at law. What I should like to ascertain is the consensus of medical and dental opinion about such conduct.